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ABSTRACT

These studies of compensatory education need and cost differentials were designed to provide identification and quantification of education need variables which must be considered in providing equal educational opportunity, with emphasis on programs for culturally deprived children. "Part A" contains the plan and background for the study. "Part B" contains a study of the target population to be served by compensatory education (means of estimation and actual estimates). "Part C" describes the inputs for selected compensatory education programs and estimates of the cost differentials of such programs relative to the cost of regular school programs. Appendixes contain data-gathering forms and program descriptions. (DM)

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EDUCATIONAL PROGRAMS FOR THE CULTURALLY DEPRIVED

— Need and Cost Differentials —

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National Educational Finance Project
Special Study No. 3

State University of New York at Albany
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Albany, New York
1970

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SPECIAL STUDY ON COMPENSATORY EDUCATION

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This study could not have been completed without the cooperation and assistance of many officials in state education departments and in selected school systems. Staff are most grateful to each of them.

In the state education departments we are most indebted to the following persons: W. H. Kimbrough (Alabama); Wilson C. Riles, Ruth Holloway, and John A. Hulbert (California); Alexander J. Plante (Connecticut); Jon Stapleton and Herman O. Myers (Florida); Ernest Brown and Noah S. Neace (Illinois); Wayne Monson and Ray Slaby (Indiana); Philip Frangos (Michigan); Clyde Bezanson (Minnesota); Leo D. Doherty, Louis Pasquini, John W. Polley, and Irving Ratchick (New York); Paul Campbell (Pennsylvania); Paul Campbell and John A. Finger (Rhode Island); T. B. Webb (Tennessee); Warren Hitt (deceased), Charles Nix, and Travis J. Smith (Texas).

In the twenty-six school systems that cooperated in the study we depended heavily upon those listed in each program description appended to Part C. Without their patience and helpfulness we could not have obtained the detailed program descriptions and expenditure data.

CONTENTS

This report is divided into three parts, designated A, B, and C. Each part has its own detailed table of contents, list of tables, and appendices. The paging is done by parts. For example, all pages in Part B have a number preceded by a B. The same is true for chapters and tables with that part.

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PART A

PLAN FOR THE STUDY

BY

ARVID J. BURKE

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CHAPTER A-I

INTRODUCTION

The term compensatory education is relatively new. It is still an evolving concept with differing meanings. The target population served by it is far from homogeneous. The kinds of programs classified as compensatory are extremely varied and numerous. Their effectiveness is seriously debated. Cost data often are rough estimates and cost-effectiveness data are seldom, if ever, available.[1]

Schools and school systems, nevertheless, having heavy concentrations of the target population often experience an increasing need for education at the very time that their resources are shrinking or are being used to meet other growing social problems.

If the need and the cost differentials for compensatory education are not taken into consideration in federal and state plans for distributing funds to schools and to school systems, even a system of complete federal and state financing of schools could prove to be very inequitable. The inequity could be much greater where state and local determinations of fiscal capacity affect the distribution of funds from central governments.

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[1] National Educational Finance Project, Dimensions of Educational Need, Volume I, p. 118.

Background

These studies of compensatory education need were conducted under a contract between the Research Foundation of the State University of New York and the Florida State Education Department as an integral part of the National Educational Finance Project, funded almost entirely under Title V, Section 505 of the Elementary and Secondary Education Act. The studies were administered by the State University of New York at Albany.

The National Project is designed to accomplish three major objectives:

> "(1) identify, measure and interpret deviations in educational needs among children, school districts, states and regions;
>
> (2) relate variations in educational needs to the ability of the school district and the state to finance appropriate educational programs; and
>
> (3) conceptualize various models of school finance and subject them to consequential analysis in order to identify the strengths and weaknesses of each model."

This satellite study was planned by the National Project to contribute to its first objective, specifically, "the identification and quantification of educational need variables which must be considered in providing equal educational opportunity," with emphasis on "the problems of culturally deprived children." It deals with compensatory educational programs for the culturally handicapped within a context of need appropriate for decision-making in the distribution of funds among schools or school systems.

The National Educational Finance Project includes six other similar satellite studies:

Programs for regular elementary and secondary school pupils

Programs for early childhood education (pre first grade)

Programs for educating exceptional children (gifted or behaviorally disabled children)

Programs for vocational and technical education

Programs for junior college education

Programs for adult and continuing (non-college) education

These seven studies are expected to provide data concerning target populations, educational programs, and cost differentials. It is the last which provides the context of need in the studies which seek to identify "those program characteristics which lead to cost differentials relative to the cost of the regular school program." The Project recognizes that absolute dollar amounts expended for such programs will vary from school system to school system. However, the Project assumes that "the cost differential - the ratio of the cost of the special program to the cost of the regular program - for special educational programs for various target groups will not vary significantly from one district to another."

Purposes

The foregoing assumptions as well as its underlying assumption that cost differentials can be estimated for compensatory education programs are what should be first examined. If these assumptions lack reality, then the other purposes will not be realized fully.

The satellite studies were asked to do the following:

(1) identify or develop criteria for identifying the target population to be served;

(2) develop accurate estimates of the number of persons in each of the target groups;

(3) indicate the nature of the educational programs needed to meet the needs of each target group, i.e., how they differ from the basic educational program; and

(4) determine the cost differentials implicit in such programs.

After reviewing the data available or obtainable on the target population, programs, and expenditures for compensatory education in the states of California, Illinois, and New York, the purposes of these particular studies were restated as follows:

(1) develop and test a method for estimating the target population to be served by compensatory education;

(2) prepare estimates of the size of that population indicating the varying extent of its needs for such education;

(3) describe the inputs for selected compensatory education programs used to serve the target population in selected states; and

(4) estimate the cost differentials of such programs relative to the cost of regular school programs based upon data from (3).

The reasons for deleting "criteria" from (1) and "accurate" from (2) are given in the sections on "Limitations" and "Assumptions" following and in Part B of this report.

The substitution of "inputs" for "nature of" in (3) was made to indicate the focus of the study on those aspects of program which might result in cost differentials.

The substitution of "estimate" for "determine" was due to the lack of data for making determinations as explained under "Limitations" and "Assumptions" and in Part C.

Definitions

These definitions of compensatory education and its target population were employed in these studies:

(1) "Compensatory education," for purposes of this study, means special programs or program adaptations designed specifically to overcome learning difficulties or handicaps in schools associated with poverty, class or status, national origin, race, cultural background, home conditions, or adverse environmental conditions generally, as distinguished from organic causes.

(2) The "target population" to be studied includes children who are encountering such learning difficulties or handicaps in elementary and secondary schools, in so far as possible avoiding overlap into the target population for exceptional children, early childhood education, vocational and technical education, and parent or adult education.

Although they include much of what is identified as within the scope of "urban education," the above definitions are not limited to urban problems. They are broad enough to include the special educational needs of the migrant labor force, the rural poor, and other disadvantaged groups living outside of core cities.

Division of Work

The first two purposes of the studies were carried out under a subcontract with Teachers College, Columbia University under the direction of Professors James A. Kelly and Walter I. Garms. They tested and refined a method for estimating the target population and prepared the estimates. The report of their work is found in Part B.

The second two objectives were the responsibility of the State University of New York at Albany under the direction of Professor Arvid J. Burke. Program descriptions and estimates of cost differentials using procedures developed by the National Project were completed by the Albany staff. The report of their work constitutes Part C.

The planning phase of the two studies based upon data available in the states of California, Illinois, and

New York also was carried on at Albany. However, the selection of states for study had to be changed due to such factors as willingness of states to cooperate in the study, availability of data, and differences in purpose. For the first two purposes, the nature of the target population was a primary consideration. For the second two purposes, the nature of the program was a primary criterion.

Common Procedures

The selection of states and estimation of cost differentials were done according to common procedures prescribed by the National Educational Finance Project. Those relating to the selection of states are summarized here because they will be referred to in both Parts B and C. Those relating to cost differentials will be summarized in Part C.

"NATIONAL EDUCATIONAL FINANCE PROJECT

Recommendations to Directors of Satellite Projects
Concerning Sample of States and School Districts

Each satellite study should utilize a sample consisting of at least four school districts in each of at least five states. To provide advice and counsel concerning the selection of the sample of states and school districts, an advisory panel should be identified for each project by the project director. The panel should be composed of from five to nine persons who are knowledgeable concerning the program area under study and who are familiar with educational programs currently provided by school districts and states for the target population under study. The members of this panel should be chosen primarily for their knowledge and competence, but it is recommended that the panel include representation from such organizations or agencies as the U. S. Office of Education, State Departments of Education and national organizations especially concerned with the education of the target population under study, as well as including scholars from colleges and/or universities. After the selection of states to be included in the sample has been completed and a tentative sample of school districts has been selected, the advice and counsel of members of the state department of education in each state included in the sample should be utilized to make a final selection of the school districts in which systematic and detailed data collection will be conducted.

In selecting the sample of states and school districts the primary criterion should be the existence of exemplary educational programs for the target population under study. Insofar as possible, the sample of states also should be selected to obtain geographic dispersion and to include states in which are found varying conditions, for example, densely populated and sparsely populated states, states having high per capita income and states having low per capita income, states with high concentrations of culturally or economically disadvantaged persons and/or minority groups and states with low concentrations of such persons, and the like. The sample of school districts within each state should be selected to include the school districts of varying size and varying social, economic, and demographic characteristics.

In addition to the above general criteria, other criteria uniquely appropriate to the area under study will need to be developed by each project director and utilized in the selection of the sample of states and school districts. The specific criteria employed in selecting the sample of states and school districts for each project should be communicated to the Director of the National Educational Finance Project."

Among the other procedures prescribed by the Project and applicable to the study as a whole should be mentioned:

> "1. Visits will be made to the state department of education and to districts included in the selected sample of local school districts in each of the sample states to obtain data concerning the organizational and instructional practices and procedures which are employed, the costs of compensatory educational programs relative to the cost of the regular school program, and any empirical and/or subjective evaluations which may exist concerning the programs which are under study.
>
> 2. Data obtained from the sample of states and school districts will be processed and analyzed.
>
> 3. Estimates will be developed of the size of the population of compensatory education, projected to 1980 and of the cost of meeting adequately their educational needs."

National Advisory Panel

Major attention during the planning stage was given to the selection of states and school systems for study. The following persons agreed to serve on the National Advisory Panel to assist in the selection:

Anita Allen, Chief[2]
Technical Assistance Branch
Division of Compensatory Education
United States Office of Education

---

[2] Resigned August 25, 1969.

Edmund W. Gordon, Professor and Chairman
Department of Guidance
Teachers College, Columbia University

Jerome T. Murphy, Former Associate Staff Director
National Advisory Council for Education
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State Department of Education
Sacramento, California

Doxey A. Wilkerson, Chairman
Department of Curriculum and Instruction
Ferkauf Graduate School of Humanities and
Social Services
Yeshiva University

The Panel were asked to react to the criteria, procedures, and staff recommendations for selection of states and school systems.

The criteria and procedures summarized below were approved unanimously by the Panel and by the National Project Director. The Panel agreed on the basis of the criteria to the omission of states in the West North Central Regional Division and in the Mountain Division.

It should be noted here that the majority of the Panel recommended selecting regions or regional divisions rather than states. However, after consultation with staff of the Division of Compensatory Education and the Bureau of

Research of the United States Office of Education and with staff of the National Educational Finance Project it was decided to follow the Common Procedures of the Project which called for at least five states with not fewer than four school systems in each.

Criteria for Selection of States

The criteria used for selection of states were these:

A. The Individual States

1. The state has at least four school systems with exemplary programs of compensatory education.
2. The exemplary programs are not all of the same type.
3. The target population for compensatory education in the state is one of the sixteen highest in the nation (upper third).
4. The school systems with exemplary programs are varied in size and resources as well as in other social, economic, and demographic characteristics.
5. If at least five states fail to meet the criteria, substitute a regional division[3] or region[4] that does. Where possible select a regional division rather than a region.

---

[3] New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific as used by the U. S. Census Bureau.

[4] Northeast, North Central, South and West as defined by the U. S. Census Bureau.

B. The Sample as a Whole

6. The states, regional divisions, or regions selected have higher proportions of the target population of the nation than they have of its total population.
7. The states, regional divisions or regions selected represent varying degrees of urbanization, different economic bases, and variable social conditions.
8. Any regional division or region not included in the sample does not have a proportion of the target population equal to its proportion of total population and/or does not have at least four school systems with exemplary programs, e.g., the Mountain Division.

Procedures for Selecting School Systems Within a State

The selection of school systems within states was done on these five bases:

1. Any school system selected by the American Institutes for Research in the Behavioral Sciences[5] as having one or more exemplary programs in compensatory education will be included unless:
    a. The National Advisory Panel advises otherwise in terms of the criteria or other evidence;
    b. The compensatory education specialists in the State Education Department advise otherwise in terms of the criteria or other evidence; or
    c. The school system is unwilling to participate in the study.

---

[5] See Section, Related Research, below.

2. A school system recommended for study in a state by the National Advisory Panel on the basis of the criteria will be included unless:
    a. The compensatory education specialists in the State Education Department advise otherwise on the basis of the criteria or other evidence, or
    b. The school system is unwilling to participate in the study.
3. If procedures 1 and 2 provide more than four school systems in a state or region in the sample, the National Advisory Panel will be asked to select the four that best meet the criteria.
4. If procedures 1 and 2 provide fewer than four school systems in a state or region in the sample the following procedure will be used:
    a. The compensatory education specialists in the state or states involved will be asked to suggest two school systems with exemplary programs which meet the criteria for each missing one.
    b. The National Advisory Panel will be asked to select from these the missing number.
    c. If any of these are unwilling to participate, others from step 4a will be selected unless the National Advisory Panel objects.
5. If procedure 4 does not provide at least four school systems, the state or region will be omitted from the study.

States Selected

Different groups of states were used for various purposes. For further details see Parts B and C. The studies in various phases have involved the following fourteen states: Alabama, California, Connecticut, Florida, Illinois, Indiana, Michigan, Minnesota, New York, Pennsylvania, Rhode Island, Tennessee, Texas, and Wisconsin.

Related Research

Three related studies have been very helpful in planning and conducting this study. Two were done by the American Institutes for Research in the Behavioral Sciences in Palo Alto, California:

1. Hawkridge, David G., Albert Chalupsky, and A. Oscar H. Roberts, A Study of Selected Exemplary Programs for the Education of the Disadvantaged (1968); and
2. Hawkridge, David G. and others, A Study of Further Selected Exemplary Programs for the Education of Disadvantaged Children (1969).

The third was done for the New York State Educational Conference Board by Walter I. Garms and Mark C. Smith, Development of a Measure of Educational Need and Its Use in a State School Support Formula (1969).

Limitations

Lack of diagnostic procedures means that statistics on the target population simply do not exist. Even data for estimating the size and composition of the population and the cost differentials have been difficult and expensive to obtain. The resources available for the study did not permit the use of large samples. The small samples may not be representative of the total population, because final selection had to be made upon the basis of availability of data and willingness of both state and local school authorities to cooperate in the study.

It also should be recognized that the studies have produced estimates of both the population and the cost differentials. They have no more validity than the data and assumptions upon which they are based. Both will be discussed in Parts B and C. Three assumptions underlying both parts are given below.

Assumptions

As the study progressed and the problems inherent in obtaining and using the data became known, these three assumptions became clear:

1. It is assumed that the target population and programs for compensatory education can be separated from the regular school programs and other

special educational programs.

One of the worst difficulties encountered in the study was that of obtaining rough estimates of how pupils divided their time among programs which had many elements in common. The latter made it necessary to seek rough estimates of how certain costs were allocated. Virtually no pupil nor cost accounting for specific programs was found.

2. It is assumed that the target population and the need for compensatory education will exist in the future.

To the extent that the target population is defined in terms of socio-economic status this assumption may have some realism. To the extent that it is based upon existing school goals for that population and existing knowledge of their learning difficulties and their causes, it may not. The roots of the learning difficulties may be in past conditions, conditions outside the community, or conditions outside the school. The ultimate solution may not lie in the school program at all. School goals for the population may have to be modified.

3. It is assumed that the socio-economic conditions upon which the estimates of the target population and program need are based will hold true in the future.

To the extent that future migration, employment, school and living conditions for the target population replicate the past this assumption may have some validity. However, a reversal of urban migration and urban concentrations of population, changed employment and housing patterns, rising standards of living, and other social or economic changes could invalidate the estimates. Even if compensatory education is found to be an effective and economical way to meet the need, the meaning attached to it could be altered. None of the existing programs may survive as better programs are conceived. Program need might have to be modified greatly if school conditions, goals, or programs are modified materially. The need could be conceived in terms of teacher selection, pupil-teacher relations, teacher-parent cooperation, and learning methods rather than in terms of separate or special programs as such.

Nature of Report

The division of work called for two separate reports. The Introduction in Part A was written by Professor Burke who was responsible for the planning stage for both studies. Report B was written by Professors Kelly and Garms who conducted the study of the target population and its estimation. Report C was written by Professor Burke and Gerald Carozza who were responsible for the study of selected programs and their cost differentials. Both studies have their own separate page, chapter, table, and appendix numbers. For example, Report B starts with page B1, Chapter B-I, and Table B1. Obviously, differences in style and other matters will be found in each report.

PART B

TARGET POPULATION STUDY

BY

WALTER I. GARMS

AND

JAMES A. KELLY

ESTIMATING NEED FOR COMPENSATORY EDUCATION THROUGH SOCIO-ECONOMIC PREDICTIONS OF ACHIEVEMENT

BY

WALTER I. GARMS

JAMES A. KELLY

TEACHERS COLLEGE
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A STUDY FUNDED BY THE NATIONAL EDUCATIONAL
FINANCE PROJECT
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CHAPTER B-I

INTRODUCTION

This chapter and the two which follow it report results of a study of "need for compensatory education." The study was conducted by the authors at Teachers College, Columbia University as a sub-contracted research project of the National Educational Finance Project (NEFP).

This is one of two compensatory education studies supported by NEFP. The other, directed at the State University of New York (Albany) by Arvid Burke, held the primary contract with NEFP; results of Professor Burke's study are reported in Part C of this volume.

The basic terminology and objectives of the study were stipulated by NEFP and were intended to parallel concurrent fiscal studies at other universities of need for early childhood education, special education, adult education, and vocational education.

The objectives assigned by NEFP for this study were:

(1) to develop and test a method for estimating the target population to be served by compensatory education.

(2) to prepare estimates of the size of that target population indicating the varying extent of its needs for compensatory education.

Before introducing the specific concepts and procedures used in the study, our use of a controversial and much-maligned term, compensatory education, requires some clarification. While the clarification may not be directly related to our empirical work, current disputes regarding compensatory education are so intense that we wish to avoid being castigated for attitudes and assumptions regarding the idea of compensatory education which we do not hold. The popular and contemporary usage of this term is directly tied to school programs funded under Title I of the Elementary and Secondary Education Act of 1965 (ESEA). For the past five years the Federal government has provided approximately one billion dollars annually to states and localities for educational programs designed, in the original language of Congress, to improve the educational achievement of educationally disadvantaged children. Funds were to be targeted closely to children of the poor, and to others identified by local and state authorities as "educationally disadvantaged." "Compensatory education" has popularly been identified with

ESEA programs.

The concept of compensatory education has been severely criticized for at least three basic reasons. First, many but not all, compensatory programs have evidently failed to produce measurable gains in student achievement. (We shall return shortly to a review of research analyzing correlates of student achievement scores.)

Second, many argue that compensatory programs are too narrowly conceived, assuming that in-school programs are sufficient in the area of compensatory education. We have little use for this narrow a concept of educational program; when children, including poor children are known to watch 4000 hours of television before entering school, Sesame Street and Head Start may turn out to be more significantly helpful than any compensatory programs in school. We simply wish to state that in conducting this study, we were not assuming any particular approach to the organization and delivery of "compensatory" (or any other) educational services, nor were we assuming that present programs are self-justifying. Whatever mix of program deliveries emerge during the 1970's, however, some methods will probably be needed to identify students whose low school achievement can be attributed to racial, economic, or social conditions adversely influencing the child's learning rate. This study explores one such method.

Third, it is argued that the concept of compensatory education is inherently racist and social class oriented, or at least pedagogically self-defeating, because it suggests non-white and poor white children lack the same capacities and skills to do school work that are observed in middle and upper class children. This assumption where manifest, results in a dangerously self-fulfilling hypothesis that poor kids can't learn, even with the "extra" help offered through compensatory education programs. It further may encourage school personnel and compensatory education bureacrats to blame students rather than schools both for the need for compensatory programs, and for the apparent lack of success of many of the programs. Studying ways to identify target populations for compensatory education obviously assumes that a target population exists. However, as the reader will see we define need in such a way that the need would be reduced to zero if the time ever arrived when socio-economic factors such as social class, income, and race are no longer correlated with school achievement. We explicitly state that we do not subscribe to this tendency to overlook inefficiencies in schools preventing higher achievement by poor students. An enormous amount of basic reform is needed in school organization, parent participation, teacher training and attitudes, instructional material, and particularly in the ways the productivity of schools is assessed (and not assessed). We do not even deny the assertion that compensatory education programs may not be likely to succeed until many of those reforms occur. Nevertheless, the relevant point here is that non-white and poor children are not achieving well in schools as they now operate, and our approach to measuring "need for compensatory education" simply tests the strength and durability of that relationship without assuming any stance regarding the nature of compensatory education programs themselves.

Definition of "Need"

A central issue in this study was the definition selected for the term "need". The term is so value-laden that no definition is possible without revealing one's values, so we begin with a statement of social purpose and base our definition on that statement; in the process of defining the term, we review some studies related to school achievement.

This study is based on two assumptions concerning the role of school in American society. First, our educational system should operate positively to further equality of opportunity rather than passively to perpetuate societal differences. Second, the educational system is able to affect achievement levels and rates of learning.

The idea that our educational system (we focus on elementary and secondary levels) should operate as a positive force for equality is central to the frequently articulated philosophy of American education. Ethnic minority groups in America have long viewed education as an avenue to success, social mobility, and acceptance in society. Indeed, this view of education has been one of the prime differences between the American system of public education and the prevalent approach in most European countries.

The second assumption - that schools can affect levels of student achievement - has come under significant questioning in recent years. Research, some of which will be cited below, has established a consistent correlation between socio-economic factors and student achievement. Some of this research has attempted to examine the relative influence of environmental factors and school factors on student achievement and has left with many readers the implication that schools make little or no difference. If this were true, a strong argument could be made for reallocating money from compensatory education to programs designed to improve social and economic conditions.

The best-known piece of research in this field is James Coleman's study for the Office of Education, Equality of Educational Opportunity.[1] After comparing community socio-economic factors and selected school factors with student achievement, Coleman concluded that variables measuring school effects account for little of the variance in student achievement. There are, however, theoretical and procedural weaknesses in the Coleman study which cast some doubts on this finding and the conclusions that might arise from it.

The primary difficulty stems from the fact that under current conditions in the United States, public schools are very similar to the communities they serve. Community socio-economic factors, school factors, and student achievement are all highly correlated with each other and it is difficult to isolate the contributions of either school factors or community factors. In his statistical treatment of the data, Coleman entered community factors first. After treating socio-economic differences most of the variation in school effects was explained. Reanalysis of Coleman's data shows that if the researcher takes school factors into consideration first and community factors second, the apparent effect of the school is significantly greater.[2] Using Coleman data to reanalyze the relationship between school inputs and achievement, Samuel Bowles has noted:

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[1] James Coleman, et. al., Equality of Educational Opportunity. (Washington: U.S. Office of Education, 1966.)

> Preliminary analysis of the computer runs which form the basis of the section of the [Coleman] Report on the effects of school resources indicate that the achievement levels of Negro students are particularly sensitive to the quality of the teaching staffs assigned to them ... While these results must be subjected to further scrutiny, the implication is that contrary to Coleman's conclusion, significant gains in Negro students' achievement levels can be made by directing additional resources to their education.[3]

The factor which Bowles found to be most closely associated with student verbal achievement was the teacher's score on a verbal facility test.[4]

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[2] Marshall S. Smith. "Equality of Educational Opportunity: Comments on Bowles and Levin," The Journal of Human Resources III: 3,(Summer, 1968) 384-89.

[3] Samuel S. Bowles, "Towards Equality?" Harvard Educational Review 38,(Winter, 1968) 93-94.

Coleman's study is open to further question regarding his measures of school factors. The study used per-pupil expenditures by district as one measure of school input. This approach ignored important differences among schools, especially in the large cities. His use of volumes per student in the school library and the presence of science laboratories as the principal measures of school facilities is questionable. Finally, Coleman's use of total students per teacher for an entire school ignored significant variations in class size within schools.

There is a body of research which indicates that certain school characteristics do have an effect on the achievement of students. Mollenkopf and Melville found that cost of instructional support per pupil and the number of specialists on the school staff showed relatively high relationships with test scores _after_ parental and community characteristics were controlled for.[5] In a longitudinal study with PROJECT TALENT data, Shaycroft also found that differences in schools account for significant variations in academic and vocational training.[6] It might be noted that although the conclusions differ from Coleman's, these studies necessarily faced similar difficulties in disentangling community variables from those attributed to the school.

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[4] Bowles, _op_. _cit_. p. 94.

[5] William Mollenkopf and David Melville, _A study of Secondary School Characteristics as Related to Test Scores_ (Princeton: Educational Testing Service, 1956), as quoted in Henry S. Dyer, "School Factors and Equal Educational Opportunity," _Harvard Educational Review_ 38 (Winter, 1968),p38-56.

A recent study in Michigan, utilizing Coleman's own data, found many significant relationships between the quality of educational services and student achievement, after categorizing Coleman's Michigan sample into socio-economic deciles. Guthrie and his associates[7] found that poor children with additional school resources scored better on standardized achievement tests than poor children with lower levels of school services.

These gaps between rich and poor are not being narrowed in America's schools, regardless of whether the gap is measured in terms of school characteristics of student achievement. Meanwhile, an emerging ethic asserts that equity in education can only be measured by examining the results of school (e.i. achievement, drop-out rates), and that it is

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[6] Marion F. Shaycroft, The High School Years: Growth and Cognitive Skills (Pittsburgh: American Institutes for Research, 1967), as quoted in Dyer, op. cit.

[7] James W. Guthrie, Ben Kleindorfer, Henry Levin, and Robert Stout. Schools and Inequality. (Forthcoming: M.I.T. Press, 1970.)

> unacceptable for public policy to allow public schools to operate in such a way that identifiable classes of children, such as non-whites and the poor, consistently receive an inferior level of school services, achieve at low levels in school, drop out of schools in large numbers, and thus fail to acquire through their schooling the means by which they may have an 'equal chance' in their lives.[8]

We therefore argue that educational need cannot be defined without reference to educational achievement, and that a need for compensatory education (however it may be defined) exists wherever there are consistent and significant differences in average levels of achievement among racial, economic, and social groups.[9] This does not mean that individuals are expected to achieve equally or identically, because individual differences in ability, industry, and rate of learning clearly rule out any such possibility. But the definition does suggest, as we have noted, that there would be no need for compensatory education if the correlation between socio-economic status and achievement were reduced to zero, or at least to an insignificant level.

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[8] James A. Kelly, "Resource Allocation and Educational Need". Education and Urban Society, Volume 2, Number 3, (May 1970), p. 261.

[9] See: Walter I. Garms, and Mark C. Smith, Development of a Measure of Educational Need and Its Use in a State School Support Formula. (Albany: New York State Educational Conference Board, 1969) p. 5 ff.

The most direct measure of educational need as we have defined it would clearly be pupil achievement as indicated on test scores. Since one eventual use of the results of this study is for the NEFP to develop a way of allocating educational resources according to conditions of educational need, an obvious method would be to allocate resources in accordance with test results. There are, however, several factors which make the use of achievement scores questionable as a criterion for the distribution of educational resources and we have rejected this approach.[10] Three of these factors are:

(1) Low achievement may indicate an inefficient educational program yielding low return per dollar. Extra resources in this case would be rewarding inefficiency. A corollary of this problem is that allocating resources inversely in relation to achievement results could be interpreted as incentive for teachers to teach poorly, or an extra pay for a job poorly done.

(2) If funds were allocated for low achievement,

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[10] This section of the report is drawn substantially from the Garms-Smith study previously cited.

aid would presumably have to decrease as achievement went up, thus denying funds to effective programs.

(3) The sole use of a standard test for resource allocations would raise questions regarding the validity, reliability, and cultural bias of the tests employed.

A second alternative, and the one chosen for this study is to find some measure or measures which correlate highly with student achievement. As noted above, major studies have established a remarkably close relationship between socio-economic factors and pupil achievement. The following section summarizes some of the more significant studies in this line of research.

Review of Major Studies of Socio-Economic Factors and Student Achievement

The types of socio-economic factors used to examine the relationship between socio-economic status and school achievement vary considerably, but the consistently significant correlations achieved are remarkable. Husén comments on this relationship in the summary of the International Study of Achievement in Mathematics as follows:

> The general consistency of the positive relationship between student's mathematics

> achievement and parental characteristics is striking. When this finding is seen in the light of the research literature, it appears that parents with higher socio-economic characteristics do a better job of preparing their children for school (no matter what the educational system) than do parents with lower socio-economic characteristics.[11]

Wolf and Dave's work at the University of Chicago has resulted in some of the most impressive correlations between home environment and both achievement and intelligence. Using a list of 13 variables to measure individual home environments, Wolf got a correlation coefficient of r=.76 for student I.Q. Using the same measure of environment, Dave found a correlation of .80 with achievement.[12]

In a study referred to, Coleman used a list of eight variables to measure socio-economic status of students. This list included urbanism of background, parent's education, structural integrity of the home, smallness of the family, items in the home, reading material in the home, parental interest, and parent's educational desires. Coleman's finding that these variables correlated more highly with achievement as measured by verbal ability than did school variables has already been noted.[13]

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[11] Torsten Husén, International Study of Achievement in Mathematics (New York, 1967), p. 254.

[12] Ravindrakumai Dave, "The Identification and Measurement of Environmental Process Variables that are Related to Educational Achievement," unpublished Ph.D. dissertation, University of Chicago, 1963. Richard Wolf, "The Identification and Measurement of Environmental Process Variables Related to Intelligence," unpublished Ph.D. dissertation, University of Chicago, 1964. See also, Robin H. Farquhar, "Home Influences on Achievement and Intelligence: An Essay Review," Administrator's Notebook XIII (Jan., 1965).

In a series of studies at the Institute of Developmental Studies, Martin Deutsch and Bert Brown divided 543 urban school children into socio-economic strata based on "prestige ratings of occupation," "education of the main bread-winner," and "housing conditions." They found significant differences in achievement between SES levels. They also noted that Negro children at each of the three SES levels scored lower than white children and the difference increased between grades one and five.[14]

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[13] Coleman, op. cit., Chapter 3.

[14] Martin Deutsch and Bert Brown, "Social Influences in Negro-White Intelligence Differences," The Journal of Social Issues 20 (April, 1964), pp 24-35. See also Gerald Lesser, Gordon Fifer, and Donald Clark, Mental Abilities of Children From Different Social Class and Cultural Groups, monograph for Society of Research in Child Development,(University of Chicago, 1965).

Using a scale similar to that of Deutsch and Brown, Vera John also found consistent differences in intellectual levels among students of different socio-economic levels. Her scale was based on a combination of status of occupation, educational level of the family head and person to room ratio of the family.[15]

The International Study of Achievement in Mathematics used occupational level and level of educational attainment as two separate measures of socio-economic status. The study concluded in part that these parental variables are significantly related to mathematics achievement in all countries studied. The tables indicated moreover that parental variables are more important in America than in most other countries.[16]

A number of studies have indicated that academic achievement and aspiration of the individual is related to the socio-economic make-up of the student body as a whole. The classic study of the relationship of the school's social climate with achievement is that of Alan Wilson. Wilson grouped eight high schools into three socio-economic levels on the basis of the occupational and educational background of the student body. He then correlated academic achievement and college aspiration with parental occupation, parental education and with the socio-economic level of the school. The study indicated not only a high correlation between achievement and individual SES, but also that the SES of the school modified all correlations.[17]

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[15] Vera John, "The Intellectual Development of Slum Children," American Journal of Orthopsychiatry 33 (Oct., 1963), pp 813-22.

[16] Husén, op. cit.

Median family income was found to be the most significant socio-economic variable in Burkhead's study of school achievement in Chicago and Atlanta. Burkhead initially tested five socio-economic factors including median family income, education of parents, percentage of non-white population, percentage of white collar workers and unsound housing. He found that median family income accounted for a greater amount of variation in achievement than any other single school or community variable tested, although housing conditions had a high correlation in Atlanta.[18]

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[17] Alan Wilson, "Residential Segregation of Social Classes and Aspirations of High School Boys," American Sociological Review 24 (Dec, 1959), pp.836-45.

[18] Jesse Burkhead, ec. al. Input and Output in Large City High Schools (Syracuse: Syracuse University Press, 1967).

One of the most impressive studies of the relationship between income and success in school is Patricia Cayo Sexton's study of elementary schools in a midwestern city. Miss Sexton used average family income as an index of social class for areas served by the city's elementary schools. She compared the income level of the school to scores on the Iowa Achievement Test, I.Q., and failures for grades four, six, and eight. Sexton found:

> (1) All schools above $7,000 income were achieving above grade level (with one exception in the eighth grade). All schools below $7,000 income were achieving below grade level.
>
> (2) Achievement test scores tended to go up as income levels go up.
>
> (3) In the fourth grade, the highest income level group was achieving two full years above the lowest group.

She found the same relationship with I.Q. scores and with school failures. The percentage of non-promotion of the $3,000 to $5,000 level for example was 7.4%. The percentage for the $9,000 up group was 1.2%.[19]

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[19] Patricia Cayo Sexton, Education and Income: Inequalities of Opportunity in Our public Schools (New York: Viking Press, 1961).

Francis Cornell examined the relationship of certain socio-economic factors with achievement in his 1966 study of school finance in New York State. Cornell found high correlations between underachievement and "percentage of housing units not owner-occupied," percent of housing units not in one-unit structures, median family income of the district and percent of families with incomes under $3,000. The variable which Cornell found to be most highly correlated with underachievement was a measure of the "percentage of economically deprived children in a district." Economically deprived children were defined as children from families whose income is less than $2,000 and which are receiving Aid to Dependent Children.[20]

A number of recent research studies have attempted to go beyond the correlation of socio-economic factors and student achievement and to examine possible causes for this relationship. Hess and Shipman have commented on the direction of this research as follows:

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[20] Francis G. Cornell, "An Analysis of New York State Aid Correction," The New York State Department of Education, (December, 1966) Unpublished.

> The thrust of research and theory is toward conceptualizing social class as a discrete array of experiences and patterns of experience that can be examined in relation to the effects they have upon the emerging cognitive equipment of the young.[21]

Perhaps the most notable of this research centers around Bernstein's theory that language structures and conditions what the child learns and how he learns, by setting limits within which future learning takes place. Bernstein identifies two forms of communication codes or styles of verbal behavior - restricted and elaborated. By conceptualizing language as a form of social behavior his theory attempts to explain how cognitive development is affected by the verbal behavior of the home.[22] Bernstein's work has received some support in studies conducted by Hess and Shipman.[23] Others who have explored how social and economic factors affect learning include Deutsch,[24] Ausubel,[25] Strodtbeck,[26] and Bloom.[27]

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[21] Robert Hess and Virginia Shipman, "Early Experience and the Socialization of Cognitive Modes in Children," Child Development 36 (1965), p. 870.

[22] Basil Bernstein, "Language Development and Cognition," Educational Research III (1961), pp. 163-76.

[23] Hess and Shipman, *op. cit.*

The thrust of the research cited above provides support for the belief that socio-economic factors can be found which correlate highly with achievement and thus could be used as an acceptable predictor of achievement scores within our definition of need for compensatory education.

As previously explained, this study has two objectives. The first is to develop a method of identifying and quantifying the school age target population of persons needing compensatory education. Our method is explained and tested in Chapters B-II and B-III, where socio-economic variables are used to predict achievement scores in samples of pupils from five states. The second objective is to prepare national estimates of the size of the target population. In Chapter B-IV we present several alternative ways to prepare such estimates and offer actual estimates where data availability permits.

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[24] Martin Deutsch, "The Role of Social Class in Learning Development and Cognition," American Journal of Social Issues 20 (April, 1964),p24-35.

[25] David P. Ausubel, "How Reversible Are the Cognitive and Motivational Effects of Cultural Deprivation? Implications for Teaching the Culturally Deprived Child," in Passow, Goldberg, and Tannenbaum, Education and the Disadvantaged (New York,1967).

[26] Fred L. Strodtbeck, "The Hidden Curriculum of the Middle Class Home," in Passow, et al., op. cit.

[27] Benjamin Bloom, Stability and Change in Human Characteristics (New York: John Wiley and Sons, Inc., 1964).

CHAPTER B-II

VARIABLES, SAMPLING AND DATA COLLECTION

In Chapter B-I we defined need for compensatory education in terms of achievement. Such need is present wherever achievement is consistently and significantly below normal levels. To develop a measure of need based on socio-economic factors highly predictive of achievement, it is necessary to select a number of socio-economic variables and test their predictive power on a representative sample of schools in several states. Chapter B-II describes the selection of states for the study, and for each state describes the selection of both achievement and socio-economic variables, the compilation of a sample, and the procedures followed in the collection of necessary data.

Selection of States

The method is tested in at least five states. In one of these (New York) the test had already been made, since we had decided, as indicated in Chapter B-I, to use the same method that was used in the 1969 study by Garms and Smith in New York.[1] In choosing additional states, we had the following criteria in mind:

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[1] Walter I. Garms and Mark C. Smith, Development of a Measure of Educational Need and Its Use in a State School Support Formula. (Albany: New York State Educational Conference Board, 1969.)

(1) To the extent possible, there should be a spread of states geographically and economically, in order to test the operation of the method in as many different situations as possible. The sample of states, then, was not intended to be necessarily representative, but was deliberately chosen to bring out differences.

(2) The state should have a statewide achievement testing program that would enable us to get comparable test results in a representative sample of schools across the state.

(3) The state department of education should be willing to cooperate in the study, for without this we believed that many individual districts would be unwilling to participate.

Our initial screening of states with a suitable statewide testing program led us to choose Minnesota, Alabama, Rhode Island, and California as the additional states in which we would conduct the study. The number of states with a testing program using the same achievement test in representative districts throughout the state is still quite small, so our selection was limited. However, more states are going into statewide testing each year. During the course of the study we learned that new statewide testing programs were being initiated in Pennsylvania and Michigan. We investigated these, partially as insurance against having to drop one of the original states.

Cooperation was immediately obtained in three of the four states originally selected. In California, we were assured of cooperation, but subsequent personnel changes in the state department of education delayed decisions until it was too late to collect data. In Pennsylvania we were given immediate cooperation; in Michigan we were reluctantly informed that it would be impossible for us to get data from the new statewide assessment project until it had been released to the school districts, and that would have been too late for this project.

We thus ended up with a sample of five states consisting of New York, Minnesota, Alabama, Rhode Island, and Pennsylvania.

Selection of Variables

To test properly our approach to the measurement of need for compensatory education, we had to select achievement and socio-economic variables. Both school achievement and socio-economic status are abstract concepts and are not susceptible to direct measurement. It is therefore necessary to choose variables that adequately measure these abstract concepts. Test scores are a practical measure of pupil achievement. We recognize that achievement tests do not measure all of the kinds of things schools attempt to teach, but they are objective measures of some very important learning areas, and the results of them probably correlate well with measures of achievement in other areas. As our achievement variable we use the percentage of students in the sample schools who score below the fourth stanine on the state tests. (The fourth stanine has nothing to do with grade level. A stanine is a standard way of dividing all of those who take a test into nine groups. In any test, approximately 23% of those who take the test will fall below the fourth stanine). Those who score below the fourth stanine may be considered low achievers. Our achievement variable, therefore, is a measure of low achievement; this standard is used by the New York State Education Department. We have also used mean achievement percentile for the school in some of our analyses. This is discussed in Chapter B-III.

The selection of socio-economic variables presents more difficulties. We were not looking for the single key environmental factor which contributes most to learning and achievement, but rather for a cluster of variables which together would serve as a plausible proxy for socio-economic status and successfully predict low achievement. Since most such measures are highly correlated with each other, they are to some extent interchangeable. In selecting variables to test, it was necessary to find factors which from previous research or force of logic seem to have a relation with achievement. Our choice of variables on which to gather data could not be decided outside the context of the decision on our unit of analysis. For reasons that we believe to be sound we selected the individual school as the unit of analysis. We made this selection for the following reasons:

(1) The individual child is too small a unit of analysis. As noted in Chapter B-I there will always be large variations in individual achievement because of differences in innate ability, industriousness, and rate of learning.

(2) The school district is too large a unit. In most districts there are schools with a concentration of disadvantaged children and other schools with a concentration of advantaged children. When using district averages many of these schools cancel one another out, leaving a composite figure that hides real educational problems.

(3) School district consolidation or decentralization would be unlikely to affect a measure based on the individual school.

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This choice for the unit of analysis both simplified and complicates the data gathering. It complicates it because in most states no data which have already been gathered would suffice. Aside from the fact that the 1960 U.S. Census data are almost ten years old, they are not gathered in such a way that they can be made to apply to an individual school. Other published data have the same problems. Furthermore, we find that there are no good ways to define adequately an attendance area. Busing, overlapping attendance areas, open enrollment and specialized schools obviate this. Thus we are forced into collecting data on the children who attend a school. Because of the size of the data collection job these must be data that can readily be collected by local school personnel.

But this complication also brings its rewards. Data gathered in this way are current, and apply completely to the individual school. In New York, Minnesota, and Alabama the data were gathered through questionnaires sent out by us to the individual schools. In Rhode Island and Pennsylvania this was not possible, but we were able to use current socio-economic data obtained as part of a state testing program.

Our reading of other research studies suggested a number of possible candidates as variables to measure socioeconomic status. Some of these could be rejected out of hand as being inapplicable or impossible to gather. We were left with eleven possibilities which we examined according to the following criteria:

(1) There should be some basis in previous studies for believing that each variable is correlated with school achievement.

(2) Each variable should be capable of unambiguous definition.

(3) Data on each variable should be capable of being gathered currently by school clerical personnel.

(4) The variable should not be subject to influence by the school.

(5) The variable should be as stable as possible.

Employing these criteria, we examined the following variables for possible inclusion in the study (the variables we used are operationally defined in Table B5):

Family income. Research has indicated that family income is for our purposes the best single measure of socioeconomic status, because of its high correlation with student achievement. The difficulty with income is that it is not obtainable for individuals without invading privacy, nor can it be easily verified. It thus violates criterion above.

Occupation of family head. Father's occupation has been used in a number of studies as a simple measure of socio-economic status. Occupations, however, are difficult to classify without a trained data collector and detailed information. For this reason, occupation could not be easily collected by school personnel. It was collected in Pennsylvania, but we did not use it because of coding problems and lack of comparability with other states.

Educational attainment of parents. Parents' education has been shown to be positively correlated with student achievement and is a useful proxy for socio-economic status. It can be easily collected at the time the student is registered at the school and is not politically or socially sensitive. Parents' education meets all of the criteria.

Race or ethnicity. Here we should measure the percentage of various minority groups in the school. We used several of the following, depending upon the state: non-white, Negroes, Puerto Ricans, Indians, and children for whom English is a second language. Ethnicity has problems of definition and has some political sensitivity. It has proven to be useful for both the schools and minority groups themselves, however, ethnicity data are currently being gathered by many schools.

Broken homes. This is a measure of whether or not the child lives with both parents. This variable may be somewhat controversial in the inner city because of the welfare implications of father absence. However, most schools routinely collect this information as a part of pupil registration, and it meets the test of the other criteria.

Welfare or Aid to Dependent Children (ADC). ACE data are collected already by many states and are used in the Federal formula for distribution of Title I ESEA funds. It also correlates well with achievement. The major difficulty with this variable is its dependence on state and local political decisions regarding eligibility standards. This objection might be lessened if welfare is only one of a number of variables used together. Another difficulty is that privacy laws in some states make it impossible for the schools to get this information.

Overcrowded housing. A measure of overcrowded housing could be derived by taking a ratio of the number living in the dwelling to the number of rooms in the dwelling. The major difficulty with this measure is the definition of what constitutes a room, although the United States Census definition could be used. Overcrowding is indicative of low socio-economic status and generally meets the criteria established.

Substandard housing. Data on substandard housing could not be gathered by local school personnel. Michigan has used in a school finance formula a measure for the percentage of housing in each school attendance area that qualifies for urban renewal. Such a measure would only apply within cities, not statewide. Like welfare data, it would be subject to local and state political decisions. Pennsylvania collected the principal's estimate of the percentage of low-cost housing in his attendance area, and we used that data in Pennsylvania.

Student mobility. Student mobility is a measure easily attainable from student records and is non-controversial. It meets all of the criteria.

Population density. Population density is an important characteristic of a school's attendance area, but does not directly reflect characteristics of students who attend the school. It was necessary to reject it on that basis.

Absenteeism. Absenteeism might provide a measure of the socio-economic level of a school. It suffers from theoretical problems in that the schools usually attempt to reduce absenteeism; thus it does not meet criterion number four that the variable must not be subject to the influence of the school.

For those states (New York, Minnesota, and Alabama) where we were able to gather our own data, we chose what seemed to us the best of the above variables. These were educational attainment of parents, ethnicity, broken homes, welfare status, overcrowded housing, and student mobility. In Rhode Island and Pennsylvania we were limited to data which had already been gathered by the state in connection with its pupil testing program. The variables available were fewer and in some respects less satisfactory. However, we have analyzed the data available and report the results in Chapter B-III.

Since the selection of a sample of schools and of students within the school, the exact variables used, and the data collection procedures varied somewhat from state to state, each state will now be discussed in turn.

New York

The New York data have already been reported.[2] However, those portions of that report that are pertinent to this study are discussed here for the sake of completeness and so that comparisons may readily be made. The New York study was done during the 1968-69 school year. We are not implying by its inclusion here that it was redone during 1969-70 for this study.

We sought a sample of schools that was representative without being too large. A sample of about 80 schools was selected, anticipating at least 50 usable returns. Because urban schools usually are much larger than rural schools, a simple random selection risked over-representation of the small schools. Accordingly, we took a stratified random sample. The school districts of the state were classified into four strata: New York City, other independent cities, suburbs, and rural. A number of schools in each stratum was chosen that was proportional to the number of public school students in the stratum.

We obtained a listing of all elementary schools in the state, classified them according to stratum, and eliminated those that could be expected to have fewer than 20 pupils in the fourth grade (because a sample of at least 20 students from a school was statistically desirable). We then chose the appropriate number of schools for each stratum by using a table of random numbers. The table below indicates the size of the stratum, the number of schools chosen, and the number of usable returns.

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[2] Garms and Smith, op. cit.

Stratum	Total Enrollment	Schools Selected	Usable Returns	Percentage Return
New York City	1,112,500	25	10	40%
Other Cities	273,200	15*	8	53%
Suburbs	1,312,700	29	16	57%
Rural	592,700	13	11	85%
Totals	3,291,100	82	45	55%

*We selected twice as many schools here as were indicated by the size of the stratum, because otherwise there would have been too few sample schools in the stratum.

The achievement tests in New York are given in the third, sixth, and ninth grades. Because the current year tests had not yet been scored when we started data collection, we had to use students who had been in a tested grade the previous year. We chose to use fourth graders, who had taken the third grade test the previous year, mainly because they would be more likely than sixth or ninth graders (who were also tested) to be in the same school the year after they were tested.

Within each school, a modified random sample of twenty fourth grade students was chosen by local school personnel using directions given by us. From last year's third grade enrollment an estimated number in the current fourth grade was determined. From this number the school was requested to select every fifth pupil (or fourth or second or whatever number was necessary) to provide a sample of not less than 25 nor more than 40 pupils. The first 20 of these for which full data could be obtained would be the sample from that school. Although this procedure meant a slight digression from randomness, the restraints of time, manpower, and money made it necessary.

The data to be collected for each of the twenty fourth grade students in the 82 sample schools was:

1. **State reading and arithmetic scores from the third grade.**
2. **The Student's race or ethnic status.**
3. **How many parents live with the child.**
4. **Whether the student is on welfare.**
5. **The number of years of schooling of his parents.**
6. **The number of rooms in the student's dwelling.**
7. **The number of people who live in the student's dwelling.**
8. **The number of schools the student has attended over the past three years.**

The data were collected by school personnel from students' record cards, the student himself, and parents.

A letter was sent to the superintendent of schools in each district containing a sample school. With the superintendent's approval, the letter was to be forwarded to the principal of the sample school, along with detailed instructions for collection of the data, a form for recording the data, and a reimbursement form for reimbursing the individual designated by him to collect the data. For New York City a suggested form was included to be sent home to parents and returned to the school. Telephone follow-up contacts were made with those principals who were slow returning data.

The final sample was composed of the 45 schools submitting usable data. Because of the higher rate of return from suburban and rural schools, the composition of the final sample does not reflect the proportion of total students in the four strata.

The major difficulties in data collection stemmed from the necessity of collecting data through the mail and the lack of direct contact. Reliance on letters and telephone calls was necessary because of the scope of the sample and the limitations of time and money. Less than 8% of the sample indicated an unwillingness to collect the data because of its semi-controversial nature. Perhaps some districts failed to see any direct benefit from the study and thus decided not to provide the data.

Considerable difficulty was encountered in New York City in obtaining the scores from the state achievement tests. Because the city schools use the Metropolitan Achievement Test for measuring achievement and for placement purposes, many of the schools in the sample had no record of the results of the state test. The school either did not receive the state scores from the central office or had failed to record them on the individual student's permanent record card. For schools which compiled all of the data except state test scores we were able to obtain the scores from the central office files, but it is possible that this problem contributed to the relatively higher rate of nonresponse in the city schools. Because we did not get a higher rate of return on our sample, we are not in a position to claim that it is a true random sample, nor to apply the usual tests of significance to the result. But as the following chapter on the data analysis will indicate, we have reason to believe that the sample is substantially representative and that our results are valid for the purposes to which we put them. We do not believe that the problems we encountered would apply to state-mandated data collection by all schools.

Minnesota

Minnesota does not mandate a particular test to be used statewide, nor does it collect the results of the testing centrally. However, over 90% of the districts in the state administered the Iowa Test of Basic Skills (ITBS) to their sixth grade students in 1969-70. The only district of any size that did not was Minneapolis, and it administered the ITBS to its sixth grade students in 1968-69. Accordingly, the sixth grade level was chosen for this study.

The procedures in Minnesota were very similar to those in New York. Because the number of returns in New York had been smaller than anticipated, we decided to choose a sample of 100 districts. We used only two strata in our Minnesota sample: Minneapolis-St. Paul, and all others. The table below shows the size of the strata, the number of schools chosen, and the number of usable returns.

Stratum	Total Enrollment	Schools Selected	Usable Returns	Percentage Return
Minneapolis-St. Paul	123,367	13	11	85%
All Others	762,804	87	52	60%
Totals	886,171	100	63	63%

The same procedure as in New York was used for choosing a sample of 20 sixth grade students within the school (in Minneapolis we used this year's seventh grade students, who had taken the test as sixth grade students last year).

The data collected in Minnesota was also the same as that collected in New York, with the following exceptions:

1. The achievement test data were the percentile ranks on the four subsections of the ITBS.
2. The ethnic variable collected data on Negro children, Indian children, and those (other than Indian) for whom English is a second language.

Alabama

In Alabama the California Achievement Test is given to all eighth graders and the tests are submitted to the state department of education for scoring. However, since no socio-economic data are collected at the same time it was necessary to gather data from local schools in the same way as was done in New York and Minnesota. A sample of 100 schools was used. Two strata, urban and rural, were used, with the urban stratum consisting of the school districts of Birmingham, Mobile, and Montgomery. The table below shows the size of the strata, the number of schools chosen, and the number of usable returns.

Stratum	Total Enrollment	Schools Selected	Usable Returns	Percentage Return
Urban	152,413	18	2	11%
Rural	707,882	82	60	73%
Totals	860,295	100	62	62%

Data collection was complicated in Alabama by the fact that we were attempting to gather data at exactly the same time that a number of districts had been told by the Supreme Court to integrate immediately. Fear of disruptions made principals and superintendents in other districts unwilling to participate also. The most conspicuous refusal was that of schools in both Mobile and Birmingham to participate. The result of this is that the Alabama sample is heavily rural, and thus not as representative of the entire state as are samples in the other states.

Within schools, a sample of 20 eighth graders was selected in the same way as was used in New York and Minnesota. The data collected were identical with those of New York with the exception of the following:

1. The achievement test data consisted of percentile scores on the three subtests of the California Achievement Test.
2. The ethnicity variable measured only Negro children and those for whom English is a second language. Actually not a single child in the sample used English as a second language.

Rhode Island

In 1969 Rhode Island embarked on a statewide testing program. All fourth grade students in the state were given the Iowa Test of Basic Skills. At the same time, a variety of socio-economic and other data were gathered. The testing and data collecting were done by the state, so that it was possible to get all of the information centrally, without having to resort to a questionnaire. It appeared, in any case, that a questionnaire approach would have been unfeasible because of state personal privacy laws.

We stratified the state into two strata:

Providence, and all others. Using the same random procedure as previously, we chose a sample of 100 schools and asked for data on a random sample of 20 fourth grade students from those schools. The table below shows the size of the strata, the schools selected, and the usable returns.

Stratum	4th Grade Enrollment	Schools Selected	Usable Returns	Percentage Return
Providence	1,954	14	12	86%
All Others	12,041	86	75	87%
Totals	13,995	100	87	87%

The State of Rhode Island experienced its own data problems, and they were able to furnish us, on IBM cards, data for only 91 schools. Of these, an additional four were discarded because parent education data were not given.

Within each school, a sample of twenty fourth graders was selected by the computer through the use of a random number generator.

The data collected in Rhode Island were unfortunately not as comprehensive for our purposes as the data collected in New York, Minnesota, and Alabama. The data we used were the following:

1. Percentile scores on the ITBS.
2. Non-white children.
3. Children for whom English is a second language.
4. Parent education.
5. Whether the child attended school in the same town last year (in Rhode Island, as in the rest of New England, a town is a geographical subdivision of a county.)

Pennsylvania

In 1969 Pennsylvania also embarked on a statewide testing program. However, they did not test all children at the selected grade level. Instead, a large sample of schools was taken. In sample schools, all fifth grade children were given an achievement test. In about half the schools the ITBS was administered; in the other half the Stanford Achievement Test was given. At the same time certain socio-economic data were gathered. We were provided with a computer tape containing school identification, achievement test, and socio-economic data for each of the approximately 20,000 fifth graders who participated in the state testing program. In addition, we received, for each school, the principal's estimate of the percentage of housing in the school's attendance area that fell into each of six categories: high, middle, and low single-family residences, and high, middle, and low apartments.

The sample consisted of 339 elementary schools, of which 161 gave the ITBS and 178 gave the Stanford Achievement Test. The number of students who took the test in a school ranged from 2 to 365. With this spread it was important to know how the sample was obtained in order to know whether it met the same criteria as did the sample in the other states (that the number of schools was proportional to the population in a stratum, in order to present overrepresentation of small schools). We determined from the Bureau of Educational Quality Assessment in Pennsylvania that the sample came close to being a simple random sample of schools, which was not consistent with our strategy of stratifying samples in proportion to population. We therefore constructed a new sample by the following method:

(1) For each achievement test group (we treated the ITBS and Stanford groups as if they were separate samples from different states) we ranked the schools by number taking the test.

(2) We dropped those schools in which fewer than 10 pupils took the test (we had used a minimum of 20 in New York last year, but had since decided that 10 was a more reasonable minimum).

(3) We divided the remaining schools into three strata: fewer than 50 pupils taking the

test; 51-100 pupils taking the test; and more than 100 taking the test.

(4) We determined the total number of pupils taking the test in each stratum.

(5) We selected a number of schools from each stratum that was proportional to the number of pupils taking the test in that stratum.

This process resulted in two new samples of first, 48 schools in which the ITBS was administered and second, 68 schools in which the Stanford test was given.

As in Rhode Island, it was not feasible to gather by questionnaire the exact socio-economic data we wanted, so we relied on the SES data gathered as part of the quality assessment project. The variables were:

1. Scores on the ITBS and Stanford tests.
2. Non-white children.
3. Parent education.
4. Amount of low-income housing in the attendance area.
5. Whether or not classes in the school were racially segregated.
6. Amount of absenteeism last year.

For reference and for convenience of comparison, Table B1 gives definitions of the variables used in each state.

TABLE B1

VARIABLES USED IN EACH STATE

Concept	Definition of Variable
NEW YORK	
Achievement	Percent of fourth grade students in the school below fourth stanine in state test in reading plus percent below fourth stanine in arithmetic (based on third grade test results)
Ethnicity	(1) Percent of Negroes in the school (2) Percent of Puerto Ricans in school (3) Percent of students in the school for whom English is a second language
Broken homes	Percent of students not living with both parents
Welfare	Percent of students whose families receive Aid to Dependent Children
Parent education	Mean years of schooling of the father (when present in the home, otherwise of the mother)
Overcrowded housing	Percent of students living in dwellings where there is more than one person per room
Student mobility	Mean number of schools attended by students during the last three years
MINNESOTA	
Achievement	(1) Percent of sixth grade students between fourth stanine in reading subsection of Iowa Test of Basic Skills (ITBS) (2) Percent below fourth stanine in Arithmetic subsection of ITBS (3) The sum of (1) and (2) (Data were also gathered on the mean scores in the above tests)

TABLE B1 (Cont.)

Concept	Definition of Variable
MINNESOTA	
Ethnicity	Same as New York, except that Indian was substituted for Puerto Rican
Broken homes	Same as New York
Welfare	Same as New York
Parent education	(1) Same as New York (2) Percent of fathers with less than a high school education (of mothers where father was not present in the home)
Overcrowded housing	Same as New York
Student mobility	(1) Same as New York (2) Percent attending more than 3 schools in last three years
ALABAMA	
Achievement	(1) Percent of eighth grade students below fourth stanine on Reading subsection of California Achievement Test (2) Percent below fourth stanine on Arithmetic subsection of California Achievement Test (3) The sum of (1) and (2) (Data were also gathered on the mean scores in the above tests)
Ethnicity	Same as New York, except that Puerto Rican was eliminated. (It turned out that there were no students in the sample for whom English was a second language)
Broken homes	Same as New York
Welfare	Same as New York
Parent education	Same as Minnesota
Overcrowded housing	Same as New York

TABLE B1 (Cont.)

Concept	Definition of Variable
ALABAMA	
Student mobility	Same as Minnesota
RHODE ISLAND	
Achievement	Same as Minnesota, but for fourth grade students
Ethnicity	(1) Percent of students non-white (2) Percent of students for whom English is a second language
Parent Education	Percent of parents with less than a high school education
Student mobility	Percent of students who attended school in a different town last year
PENNSYLVANIA	
Achievement	A.(1) Percent of fifth grade pupils below fourth stanine on reading subsection of ITBS (2) Percent of pupils below fourth stanine on Arithmetic subsection of ITBS (3) The sum of (1) and (2) B.(1) Percent of pupils below fourth stanine on Reading subsection of Stanford Achievement Test (2) Percent of pupils below fourth stanine on Arithmetic subsection of Stanford Test (3) The sum of (1) and (2)
Ethnicity	Percent of students non-white
Parent education	Same as Minnesota
Housing	Principal's estimate of proportion of low-income housing in the school's attendance area

TABLE B1 (Cont.)

Concept	Definition of Variable
PENNSYLVANIA	
Racial segregation	Whether the child attended a class that had members of another race in it
Absenteeism	(1) Mean number of absences per child last year (2) Percent of pupils who were absent more than 10 days last year

CHAPTER B-III

DATA ANALYSIS

Anthony M. Cresswell*

Purpose

Previous studies have shown a strong relationship between indexes of socio-economic status (SES) and educational achievement. Therefore SES data should be useful in predicting levels of achievement on a school-by-school basis. It is the purpose of this analysis to explore the use of such SES indexes in predicting levels of need for compensatory education (defined in terms of amount of low achievement) in samples of schools from five states. It is not the purpose of this analysis to seek or test a causal model of either need for compensatory education or scholastic achievement. Neither is this an attempt to exhaust the variety of socio-economic status variables which could conceivably be employed. The emphasis is on prediction of low achievement with information widely and easily available, and in such a way as to be useful eventually in allocation of financial aid to schools.

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*Dr. Cresswell analyzed the data and authored this chapter. Messrs. Garms and Kelly retain responsibility for the report as a whole.

Why need for compensatory education has been defined in terms of achievement and socio-economic status has been dealt with at length in Chapter B-I and will not be treated separately here.

This discussion deals first with the multiple linear regression model used to test predictive power. Results of the regressions are then discussed in terms of the variables used and the nature of the state sample from which set of data was collected. Some conclusions are then drawn regarding the viability of this approach for the estimation of need for compensatory education among schools in a state.

Multiple Regression Model

The prediction of one variable from some composite of others implies the existence of a relationship between the elements of the composite and the variable to be predicted. Rather than search for the nature and expression of such a relationship, multiple linear regression assumes the best approximation is a linear one. That is, the predicted value of low achievement for any school in the sample is calculated by a linear combination of the values for each of the SES variables for that school, as below:

$$\hat{Y} = b_1X_1 + b_2X_2 + . . . + b_nX_n + e$$

In this case $\hat{Y}$ is the predicted value of low achievement, (e.g. percent of pupils scoring below the fourth stanine on an achievement test). X_1, X_2, etc. are the values of the SES variables for that school. The numbers b_1, b_2, etc. and e are constants determined in such a way as to minimize the deviation of the predicted value of low achievement for each school from the actual value. They apply to all the observations in a given sample. If this approximation is a good one the predicted values of low achievement will be close to the actual values.

The predictive success of the linear regression model can be expressed in a number of ways, the most convenient of which is the coefficient of determination (R^2). It expresses the degree of "fit" of the regression model to the data. An R^2 of 1.0 would indicate a perfect fit; all variation in observed low achievement would be matched by variation in the predicted values. The value of R^2 decreases toward zero as the predicted values deviate from the actual ones. This coefficient can also be interpreted as the proportion of the variance in the actual measure of low achievement (Y) which is matched or "accounted for" by variance in the predicted values ($\hat{Y}$). The variance in $\hat{Y}$ is a result of the combination of predictor variables (X_1, X_2, etc.). R^2 can therefore be said to represent the proportion of the variance in low achievement accounted for by the predictor variables.

The value of R^2 indicates the proportion of variation in low achievement (Y) accounted for by the predictors taken as a group. It is also possible to make inferences about the contribution of individual predictor variables, within the limits of the regression model. If the predictors used are completely independent of one another (that is, they are not intercorrelated), then the coefficient of determination (R^2) will equal the sum of the squares of the correlations of the predictors with the criterion variable ($R^2 = r_{1y}{}^2 + r_{2y}{}^2 + \ldots + r_{ny}{}^2$). Each of the predictors makes a unique contribution to the explanation of variance, and the total variance explained is the sum of the unique contributions.

In investigations in the social sciences it is extremely rare to find a variable that is independent of the other predictors. It is more the rule that all of the predictors are intercorrelated, often highly. In such a situation, the total proportion of variation explained (R^2) is less than the sum of the proportions explained by the individual variables. It is necessary to think of the contributions of the variables differently. There are at least two approaches to this, each of which has its conceptual uses. One may think of the variation explained by, say, the first variable (${r_{1y}}^2$) as consisting of the unique contribution of the variable (U_1) plus a common contribution of all of the variables (C). The coefficient of determination would be the sum of the unique contributions of the variables plus the common contribution of all of the variables ($R^2 = U_1 + U_2 + \ldots + U_n + C$). It is often instructive to look at the unique contributions of the variables. Essentially, we are asking how much we can increase our prediction of the variation in the criterion variable by adding a particular variable.

The other way of looking at it is to use a method of computation which in some way divides the common contribution among the predictor variables. If B_1 is the standardized regression coefficient (or beta weight) of variable X_1 and r_{1y} is the correlation of that variable with the criterion variable, then it is true that $R^2 = B_1 r_{1y} + B_2 r_{2y} + \ldots + B_n r_{ny}$. Since each term refers to only one variable it is reasonable to think of the beta-r product as being the total contribution of that variable to explanation of variance, and the sum of these contributions for all of the variables equals R^2. However, note that the common contribution has been distributed among the variables by the computational procedure, and we have no assurance that this is the most appropriate way to distribute it. Nevertheless, this seems the best comparison method to use for the limited purposes to which we shall put it. Our main concern is with prediction, not with relative contributions of variables, and we only concern ourselves with these contributions in looking for explanations of differences in R^2 in different states.

Achievement vs. Low Achievement

Most previous studies of the determinants of educational achievement have used regression techniques to account for variation in levels of educational achievement among pupils, classes, school buildings, etc.[1] However, the focus here is not overall achievement, but the level of educational need; the presence of significant and persistent low achievement. For example, the mean percentile rank (on national norms) for all fifth grade pupils in a given school building on a reading test is a measure of achievement. The percentage of pupils scoring below the 23rd percentile is an index of low achievement. These two variables are not, a priori, equivalent. Two school buildings with the same mean percentile score could have widely different proportions of their pupils below the 23rd percentile due to differences in the distribution of scores within buildings. Therefore, the emphasis here is on a measure of low achievement: percent of pupils in a school building below the fourth stanine (23rd percentile) on the national norms for the achievement test used.

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[1] See Chapter B-I.

Whether or not a measure of low achievement and one of overall achievement produce the same result was examined. The results are shown in Table B2. Few large differences in outcome were observed, but they were consistently in favor of higher levels of prediction possible using low achievement as the predicted variable. This finding coupled with the emphasis on need for compensatory education underlying the investigation led to a concentration on the prediction of low achievement.

TABLE B2

COMPARISON OF COEFFICIENTS OF DETERMINATION (R^2) OBTAINED USING POLAR AND NON-POLAR CRITERION VARIABLES

State	Achievement Test	Criterion Variables Polar	Criterion Variables Non-Polar
Alabama	Reading	.349	.304
	Arithmetic	.453	.457
	Reading + Arithmetic	.418	.412
Minnesota	Reading	.523	.491
	Arithmetic	.340	.237
	Reading + Arithmetic	.478	.379
Pennsylvania[a] (ITBS)	Reading	.593	
	Arithmetic	.441	
	Reading + Arithmetic	.593	
Pennsylvania (Stanford)	Reading	.597	
	Arithmetic	.460	
	Reading + Arithmetic	.562	
Rhode Island	Reading	.374	.366
	Arithmetic	.168	.219
	Reading + Arithmetic	.313	.309

[a] Pennsylvania was considered as two subsamples, one using the Iowa Test of Basic Skills, the other, the Stanford Achievement Test. Non-polar data were not available in Pennsylvania.

Polar vs. Non-Polar Predictor Variables

As with the measures of achievement, it is possible to consider several of the indexes of socio-economic status in more than one way. The question is whether the best predictors of achievement are measures which express central tendency for a school building, or those representing low SES. That is, SES can be thought of as a non-polar or a polar variable.[2] Evidence from previous investigations would suggest that the latter approach would be the more powerful, but the results of both approaches were compared. It was found that where SES variables were polarized the predictive power of the regression model was, in general, higher. However, the differences were not large enough to be considered reliable. The comparisons are shown in Table B3. Since these differences are so small the non-polar predictor variables will be chosen to maintain consistency with the New York State study.[3] Discussion will concentrate on them for the remainder of this analysis.

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[2] For example, parents' education level can be expressed as mean years of schooling, a non-polar variable, or as percent of parents with less than a high school education, a polarized variable.

[3] Analysis of data from New York was performed in an earlier study, and reanalysis using polar variables was not feasible.

TABLE B3

VALUES OF COEFFICIENT OF DETERMINATION (R^2)

OBTAINED USING POLAR AND NON-POLAR PREDICTOR VARIABLES

	Polar Predictors	Non-Polar Predictors
Alabama N=62		
Reading	.349	.344
Arithmetic	.453	.456
Reading + Arithmetic	.418	.417
Minnesota N=63		
Reading	.523	.533
Arithmetic	.340	.335
Reading + Arithmetic	.478	.475
New York[a] N=45		
Reading		
Arithmetic		
Reading + Arithmetic		.709
Pennsylvania (ITBS) N=48		
Reading	.593	.657
Arithmetic	.441	.528
Reading + Arithmetic	.593	.657
Pennsylvania (Stanford) N=69		
Reading	.597	.579
Arithmetic	.460	.464
Reading + Arithmetic	.562	.554
Rhode Island N=87		
Reading	.374	
Arithmetic	.168	
Reading + Arithmetic	.313	

[a] Only non-polar predictors were used in the New York study.

Differences Among States in Predictive Ability

The differences in proportion of variance in low achievement accounted for in the various states deserves discussion. In New York about 70% of the variance is explained, in Pennsylvania about 60%, in Minnesota about 50%, in Alabama about 40%, and in Rhode Island about 30%. These results seem to range from highly satisfactory to disappointing.

There are several reasons that might be advanced to explain why not all of the results are satisfactory. One is that the model is not a good one; that socio-economic status may not be highly correlated with school achievement in all states. A substantial body of research, some of which was referred to in Chapter B-I, has shown a strong correlation of SES and school achievement in a variety of states. However, it is certainly possible that the relationship could be stronger in some states than in others. It seems dubious that this could account for all of the observed differences though. The second hypothesis is that the variables selected do not accurately measure socio-economic status in all of the states selected, or that errors in measurement have resulted in inadequate data. This seems to be a reasonable hypothesis. A third hypothesis is that the achievement tests differ substantially in what they measure, and that this contributes to differences in R^2. It is true that the New York, ITBS, California, and Stanford tests do not all measure exactly the same things. But it is rather difficult to argue that they do not in some way measure school achievement. The studies referred to in Chapter B-I have used a number of different achievement tests as criteria and have had good results with them. It therefore seems unlikely that his hypothesis is the main reason for the differences in R^2 among states.

There are three states (New York, Alabama, and Minnesota) in which the predictor variables are essentially identical (with minor differences in the ethnicity variable), yet there is a large range in the amount of variance accounted for by the regressions. Some light is thrown on the possible reasons by Table B4 which gives data means for the variables. Minnesota differs markedly from New York in having a very small non-white population. But it is this ethnicity variable that in New York is the best predictor; it alone can account for 67% of the variation. In terms of total contribution to explanation, children from broken homes and those on welfare are the best predictors in Minnesota. It seems

TABLE B4

MEANS OF THE VARIABLES FOR EACH STATE SAMPLE

Variable	Alabama	Minnesota	New York	Pennsylvania (ITBS)	Pennsylvania (Stanford)	Rhode Island
% below 4th stanine						
Reading	38.93	16.35	25.45	43.48	19.74	19.73
Arithmetic	49.91	16.96	14.17	31.52	12.87	17.51
Reading + Arithmetic	88.84	33.31	39.62	75.00	32.61	37.24
Ethnicity						
% Negro	38.74	0.80	11.25			
% Puerto Rican			5.59			
% Indian		1.32				
% "Foreign Language"	0.00	0.24	0.56			28.39
% "non-white"				13.85	16.51	5.25
Total "ethnicity %	38.74	2.36	17.40	13.85	16.51	33.64
% from broken homes	22.00	21.65	21.23			
% on welfare	16.02	6.12	9.12			
Housing						
%in overcrowded housing	35.83	21.65	21.23			
% in low-cost housing				37.42	35.74	
Parent Schooling						
Mean years of schooling	9.33	11.97	11.85	11.81	11.98	
% with less than high school education	58.79	24.83		37.03	34.66	25.96
Mobility						
Mean number of schools attended last 3 years	1.44	1.33	1.29			
% attending more than 3 schools last 3 years	8.41	6.23				
% in different school than last year						27.08
Absences						
Mean absences last year				4.37	4.25	
% absent more than 10 days				13.18	12.89	
% in segregated classes				56.19	56.93	

that we have in Minnesota a population that is substantially different than that in New York. It is almost exclusively a white population, and much more homogeneous in the ways that we have measured SES than in New York. It is possible then that the reason for the poorer showing in Minnesota is that our variables are not doing as comprehensive a job of measuring SES as they do in New York. On the other hand, it is possible that achievement is not as highly correlated with SES in Minnesota as in New York. It would seem possible for this to be so in a state where the cultural backgrounds of groups of the population are not as diverse as they are in New York.

Alabama is a different situation. The proportion of Negroes is considerably larger than it is in New York, so that the hypothesis advanced for Minnesota will not hold water here. We believe that the source of the difficulty may be in the sample. Unfortunately, two of the three largest cities in Alabama refused to participate in the study, for reasons explained in Chapter B-II. As a matter of fact, only 2 of the 62 schools included in the sample were urban schools. It appears that we have a predominantly rural sample. This may help to explain the fact that percent Negro is not a strong predictor of achievement in our Alabama sample. It may be that in rural Alabama average educational aspirations are not as different among the races as they are in New York.

The explanation of the quite disappointing showing for the R^2 in Rhode Island is much easier. The variables are inadequate. The percentage of children who attended school in a different town last year is not the sort of measure of mobility that we were interested in. We were interested in a measure of those children who move frequently from school to school (for reasons usually associated with SES) and suffer educational disadvantage because of it. There are only two potentially valuable variables, those measuring ethnicity and parent education. The ethnicity variable also illustrates the fact that Rhode Island is different than the other states in this respect. While it has a relatively low percentage of non-whites, the percentage of those for whom English is a second language is very large. The figure of more than 28% for this variable is suspect, and it is probably a statistical artifact. The variable was coded in such a way that there was no place (as there was for the other variables) to code a "no answer". It is possible that a substantial percentage of those who were coded as "foreign speaking" were really in the "no answer" category. The reasons, then, for the poor showing in Rhode Island are almost certainly an insufficient number of variables, inadequate variables, and data problems.

To examine the states in a more consistant manner, a second set of regressions was performed using only the two variables available in all samples: percent non-white and parents educational level. In this way it is possible to compare the relative power of the regression using almost common predictor sets, and also examine the relative contribution of the individual predictors to the total variance accounted for. Results of these runs are shown in Table B5.

In four of the five states the use of only percent non-white and parent education causes a relatively small reduction in the amount of variance accounted for. For these states it is clear that these two predictors alone can represent the full set of predictors without much loss of predictive power. The Minnesota sample, however, displays a much different reaction. The predictive power of these variables drops to very low levels. Reference to the socioeconomic context in Minnesota however, provides a ready

TABLE B5

State	R^2	Total Contribution of Percent Non-white	Total Contribution of Parent Education
Alabama			
Reading	.306	.197	.109
Arithmetic	.380	.282	.098
Reading + Arithmetic	.364	.254	.110
Minnesota			
Reading	.143	.117	.026
Arithmetic	.016	.013	.003
Reading + Arithmetic	.060	.058	.002
New York			
Reading			
Arithmetic			
Reading + Arithmetic	.641	.453	.188
Pennsylvania (ITBS)			
Reading	.570	.165	.405
Arithmetic	.436	.195	.241
Reading + Arithmetic	.565	.202	.363
Pennsylvania (Stanford)			
Reading	.549	.486	.063
Arithmetic	.454	.393	.061
Reading + Arithmetic	.537	.470	.067
Rhode Island			
Reading	.354	.151	.203
Arithmetic	.115	.082	.033
Reading + Arithmetic	.273	.146	.127

explanation for this observation. Table B4 shows that the Minnesota sample contains less than three percent non-white pupils in its schools on the average and the lowest percentage of parents with less than a high school education. The standard deviation of these two variables within this sample is also smaller than observed in the other samples. Differences in socio-economic status among the schools in the sample are not well defined by these variables. They should therefore not be highly related to variables which do show large variations, such as the achievement test measures employed. These results for five states corroborate the findings discussed above for Alabama, Minnesota, and New York.

The definite implication is that the same set of predictors is not adequate for every state. By having a large number of predictors one might get equivalent predictive capability in all states. But this is wasteful of money and time in data gathering. If a state wishes to use this method of identifying the varying extent of need for compensatory education among the schools of the state, it should experiment with a number of predictor variables and then choose those few that do an outstanding job of prediction within that state.

In spite of the fact that the predictive ability of this method has not been as good in the other states tested as it was in New York, we feel that we can recommend this method as a potentially valuable one for a state to use in identifying need for compensatory education. We feel confident that much better results could be obtained with a selection of SES variables for each state appropriate to that state.

Summary

Measures of socio-economic status and educational achievement drawn from samples of the elementary schools in five states were analyzed. The purpose of the analysis was to test the ability of the SES variables to predict levels of low achievement in each of the separate samples. A multiple regression model was used to establish predictive power in terms of a coefficient of determination (R^2) for various combinations of SES predictor variables and achievement variables.

High levels of prediction were found to be possible in at least two of the states sampled with the available predictors. Those states in which high levels of prediction were not possible were found to be different from the others in terms of their profiles on available socio-economic indexes. It was suggested therefore, that these states represent substantially different contexts for which other predictor variables would be more appropriate, yielding higher R^2 values.

It was concluded, in general, that the use of SES variables to predict educational achievement is a viable approach. But the same set of predictor variables is not useful for all states. The choice of variables must take into account the nature of socio-economic variation within that state. When such is done it should be possible to obtain substantial levels of prediction of need for compensatory education on a school-by-school basis.

CHAPTER B-IV

ESTIMATING NATIONAL TARGET POPULATIONS

The second objective of this study was "to prepare estimates of the size of the target population" requiring compensatory education and where possible to project the estimates to 1980. This objective is similar to objectives stipulated by the National Educational Finance Project for each of its research projects.

For reasons we shall make clear, the second objective is considerably more difficult to achieve than the study's first and primary objective, to develop and test a method for identifying the target population to be served by compensatory education. One might quickly assume that estimating the size of a target population would be relatively easy once a method had been developed for identifying that target population. That this is not so is a function not only of definitional problems inherent in the target population approach (and discussed previously in this Report), but also to technical problems and the unavailability of certain data for national populations or samples. Before presenting the actual estimates we discuss briefly the difficulties and constraints encountered in the effort.

A straightforward way to prepare national estimates of the compensatory education target population would be to use the method used for our state studies. Essentially, that method consists of a weighted sum of socio-economic measures that predict the present number of pupils below an arbitrary standard (the fourth stanine) in achievement. To use this as a projection method we would need raw data for the SES variables and regression weights on a national sample.

At first we anticipated obtaining the necessary data from the Equal Educational Opportunity Survey (Coleman, et.al.) to develop national estimates. The sampling problems of the Survey, however, are particularly severe in cities where a large segment of the target population for compensatory education is presumed to reside; many urban school districts refused even to participate in the Survey. We also explored the possibility of using data from Project Talent data, in addition to being old (the tests were administered in 1960), lack the SES variables we require. The National Assessment Program, as of this writing concluding its first operational year, has test scores available only in the areas of citizenship, science, and writing, (not reading or mathematics, the two areas of achievement most acceptable as criteria of a need for compensatory education services).

We have already mentioned that the data base in recent years for SES and achievement variables is spotty. The infrequency of the decennial population census deals a crippling blow to studies of current demographic phenomena near the end of a decennial period. The civil rights movement, and Federal anti-poverty legislation are two among many factors which suggest that 1959 Census of Population data are not likely to reflect very accurately the nation's condition in 1970.

Reading achievement data on a national basis are either unusable for our purposes (see previous remarks regarding Project Talent and Coleman Survey) or in the case of National Assessment data, not yet available for the basic subjects of reading and mathematics. This dearth of data points up the extreme importance of the National Assessment effort, which will for the first time make available data regularly available on student attainment in a variety of areas.

Because raw data are not available for our SES and achievement variables on a national basis, regression weights cannot be calculated, and current and projected national estimates cannot be made using the SES achievement prediction model used for the state studies. Thus, we are unable to use the preferred technique in identifying the size of the target population.

But even if accurate and current data were available, projecting these data a decade ahead and developing estimates for 1980 is indeed a slippery business. Assuming that socio-economic conditions are involved in any definition of need for compensatory education, consider some of the factors which could alter substantially one socio-economic factor income distribution during the coming decade. Economic uncertainty surrounds the estimate on all sides. The Federal budget is chronically in a deficit condition; balance of payments is also chronically in the red; interest rates are at record high levels; prices are rising at about 8% per year in an economy which stopped real growth more than a year ago; war continues to consume the nation's energies and resources; and the stock markets are down about 1/3rd from pre-1969 levels. These problems reflect simultaneous recession and inflation, an unstable position from which to hazard a prediction of income distributions ten years hence.

The social tension between desegregation and backlash, between egalitarian impulses such as the negative income tax and libertarian traditions such as state and local control of Federal anti-poverty effort, remain unresolved and are as conflictual and unpredictable as ever. Yet the manner in which basic social and economic conflicts are resolved or unresolved will have profound implications for what populations in 1980 actually do or do not possess certain characteristics judged in 1970 to be relevant to a "need for compensatory education."

Thus cautioned, the reader will understand why no single way of defining and measuring a compensatory education target population can be used to prepare national estimates. Instead, we offer four general criteria for judging the adequacy of any measure of a target population for compensatory education, and then consider four alternative measures of need for compensatory education. Where possible, estimates are presented of the size of the target population in 1970 and 1980 for each measure. It is assumed throughout the discussion that the reader is aware of our definition of "need for compensatory education as low achievement and low socioeconomic status."

There are many possible criteria that could be stipulated for measures of a target population. We suggest four which are particularly appropriate for the compensatory education area and which are stated in question form. The four are:

(1) Are the measures objective and unambiguous?

(2) Can the measures identify target populations by school building or neighborhood?

(3) Do the measures identify the varying extent to which target populations need compensatory education services?

(4) Are the measures annually available?

The rationale for the first criterion is self-evident. The second criterion is based on arguments presented earlier for using the school building as the unit of analysis in our state studies. Intra-district differences among school buildings are frequently concealed by the use of district averages, while use of school-by-school data allows city, state or even Federal officials to focus resources where specific problems exist. The third criterion suggests that identifying target areas is not sufficient; the measures should allow quantification in some way of the varying extent of need in each school building.

The fourth criterion is important because of rapid population mobility patterns among the population as a whole, and the poor in particular. Student turnover in some urban schools exceeds 100% within a single school year. To rely heavily upon a decennial census for population characteristics for specific neighborhoods or districts will not provide credible data on the compensatory education target population.

Our immediate purpose for presenting the alternative measures is to make national estimates of the target population. Presumably, however, the measures, if adopted on a national or state basis, would be used to identify differences in need for compensatory education among localities. The second and third criteria require measures to discriminate among local units. Thus, in discussing the strengths and weaknesses of the alternative measures we examine both local and national aspects of the problem.

In the discussion that follows, each of four alternative measures for identifying compensatory education target populations is reviewed in terms of the four criteria. The four alternative measures are:

(1) The proportion of students in a school below a stipulated standard on an achievement test.

(2) The proportion of students predicted to be below a stipulated standard on

an achievement test, based upon student socio-economic status.

(3) The proportion of students whose families are below a stipulated income level (the measure used for Title I of the Elementary and Secondary Education Act).

(4) The proportion of students who are non-white plus all whites below a stipulated income level.

Achievement

The first of the alternative ways of measuring a national target population for compensatory education is to stipulate a school achievement level below which all children would be designated as needing compensatory education services. (Children achieving poorly in school because of mental and physical handicaps such as mental retardation, deafness, or blindness, are by definition excluded from the compensatory education target population). One way to operationalize the measure is to establish a standard such as the fourth stanine; children scoring below the fourth stanine on standardized achievement tests in reading and mathematics are in the target population for compensatory education. Under this approach, the bottom 23% of students would fall into this category. The New York State Education Department presently uses this standard in its interpretations of statewide tests in reading and mathematics; the fourth stanine is deemed the minimum acceptable level of student achievement.

The rationale for using this approach, previously discussed in Chapter B-I, stresses the central importance of analyzing achievement of students as a criterion of need for compensatory education. It can be argued that low achievement is prima facie evidence of need for additional educational services, and is a far more direct measure of need than indexes of school district or parental poverty, for instance. We do not review here the arguments presented earlier supporting this approach.

It is clear that serious difficulties would be encountered in the practical use of this measure, however, First the standard suggested, the fourth stanine, is arbitrary and categorical rather than incremental; students scoring slightly above the standard would not be counted within the target population while those with practically identical scores, but below the arbitrary line, would be included. Second, such a standard is relative; there will always be a bottom 23%, or bottom third, or whatever, regardless of how the absolute level of achievement might improve or decline.

In addition, there are practical problems in incorporating school achievement scores directly into arrangements for allocating resources in education, and since that is at least one of the purposes to which the results of the entire NEFP project may be put, it is a relevant consideration. We mentioned earlier three problems that arise if resources are allocated inversely in relation to school or school district achievement scores: first, extra aid to places with low achievement may reward inefficiency; second, aid would decrease as achievement rose, functioning as a negative incentive; and third, achievement tests as a single criterion are criticized on grounds of alleged cultural bias and on technical grounds of validity and reliability.[1]

While this measure would always result in the same percentage of students in the target population on a national basis, (23% if the fourth stanine were the standard), local and state subdivisions could vary substantially. Some localities might find that as few as 10% of their students scored below the national fourth stanine, while in other districts 50% or more of the students could be below the standard.

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[1] Walter I. Garms, and Mark C. Smith, Development of a Measure of Educational Need and Its Use in a State School Support Formula, (Albany: New York State Educational Conference Board, 1969), p.8.

Use of this measure would clearly require new testing programs administered at the national level. The National Assessment Program tests reading and arithmetic only every three years and while it permits national and regional estimates based upon its samples, it presently provides neither local nor state scores. New testing would be required if local discriminations were desired at the school building or school district level. However, there is no technical reason that annual scores could not be obtained for local schools or districts, provided tests were administered annually to samples of students in each school or district throughout the nation. Such a testing program would reveal the varying extent to which localities needed compensatory education, according to this measure.

Turning to the numbers of pupils within the target population using this measure, we find that the total school age population in 1970 is approximately 53 million children.[2] If the target population is 23% of the school age population,

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[2] These samples are drawn from: Bureau of the Census, "Current Population Estimates", Series p-25 #381, (Washington: U.S. Government Printing Office, 1967)

the number of children in that category would be 12, 190,000 for 1969-70. Projecting ahead to 1980 the U.S. Bureau of the Census estimates that the school age population in 1979-80 will be approximately 61,200,000. About 14,076,000 children would be within the target population for that year if the fourth stanine standard were to be used. These figures, however contain children who are physically handicapped and mentally retarded. The number of physically and mentally handicapped children in 1967 was about 2.2 million, or 4% of the school age population.[3] No estimate is available for 1980 for mentally and physically handicapped, but if 4% of the population remains in the handicapped category, we could expect about 2.5 million such children in 1980. We assume that of the 1970 proportion of handicapped in the school-age population, about 4%, is accurate for the low achieving segment with which we are dealing. While some assert that a large proportion of the poor and non-white groups are handicapped than is the case for middle class whites, these differences are not precisely known on a national basis and are likely not to be large enough differences to seriously alter our estimates.

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[3] U.S. Department of Health, Education, and Welfare, Digest of Educational Statistics, (Washington, D.C.: U.S. Government Printing Office, 1969), p 2.

Using the fourth stanine standard, and excluding the handicapped, the net number of children of school age in the target population for compensatory education in 1970 is 11.70 million,while for 1980 the figure is estimated at 13.51 million children.

These estimates would obviously change substantially if the arbitrary achievement standard were changed upward or downward. For example, if the standard were set at the bottom 20%, the net number in the target population in 1970 would be 10.17 million, and in 1980, 11.76 million children.

Socio-Economic Prediction of Achievement

In Chapter B-II and B-III we described and reported a five-state study in which certain data regarding student socio-economic characteristics were used to predict student achievement on reading and mathematics achievement tests. A target population could be measured at the local, state, or national levels if data such as we collected in the five states were obtained on a national basis. The method consists of a weighted sum of socio-economic measures that predict the present number of students below a stipulated achievement standards, such as the fourth stanine.

There are two basic reasons for using this kind of measure. First, it links a measure of low achievement (*prima facie* evidence of need for additional educational services) with measures of low socio-economic characteristics (the presumed cause of low achievement among the poor). Second, use of the prediction model meets the three objections we previously identified with any use of achievement tests alone for allocating resources. The first objection, that extra aid to places of low achievement may reward inefficiency, is removed by use of the prediction model because allocation could be made, or target populations measured, in terms of the number predicted to be below a standard, not the actual number below the standard. The weightings determining the school's score on this measure are determined for a state or national population and are thus not subject to influence by possible inefficiencies in the short run. The second objection, that aid would have to decrease as achievement rose, is similarly removed because the size of the overall target population or actual aid would not necessarily change at all as achievement rose unless the socio-economic factors were differently weighted in the total population or unless special provision was made for not "penalizing" (by removing resources) places with rising achievement scores. The third objection, regarding the reliability, validity, and cultural bias of tests, is only partially removed; this method of measuring a target population relies on test scores as the criterion against which the predictions are made. However, socio-economic data are presumably much more stable and less subject to short-term reliability problems than tests, so the third concern is partly mitigated.

The use of this method does not change the size of the national target population reported for the first method, because this method also utilizes an arbitrary standard - the fourth stanine - for the criterion test scores. Thus, if the fourth stanine is the standard used, 23% of the total population of children would be within the national target population. The method would also allow discrimination at state and local levels, because the number predicted to be below standard will vary widely from place to place.

The method would therefore provide data regarding the varying extent to which local populations need compensatory education programs. As we previously explained, data are not now available on which to develop national target population figures at this time; neither test scores nor the required socio-economic data are available for an adequate and appropriate sample of students. However, the data could be annually available if a nation-wide procedure were implemented each year similar to the procedure we followed in our study within the five states.

To use this method for projecting the size of a national target population to 1980 would require regression weights for the socio-economic variables based on a current national sample, and estimates of the national size of those variables in 1980. We have neither, so no projection to 1980 is possible for this method.

Family Income Level

The third alternative way of measuring a target population for compensatory education is to calculate the proportion of students whose families are below a stipulated income level. This measure could be defined in a number of ways. We choose to define it in the same way the number of eligible pupils is determined for ESEA Title I. For example, the number of eligible pupils for fiscal 1970 was determined by adding the number of children in families whose income in 1959 (1960 Census) was below $2000, and the number of children whose families were receiving more than $2000 per year in

Aid to Dependent Children (ADC) in January 1970, as reported by welfare officials (a method which obviously double counts many children and families). These determinations are made on a county by county basis for all states by the United States Office of Education, and funds are allocated from Washington for each county.

Actually, the funds are allocated to states for use within counties on a basis relying heavily on the judgment of local and state educational officials regarding the precise location of "educationally disadvantaged" children. The United State Office of Education reports that approximately 9,000,000 children actually receive services paid for by ESEA Title I. Thus, it could be argued that the target population for ESEA Title I services actually is locally determined on a judgment basis, but for our purposes we shall use the more objective formula used for allocations from Washington to counties.

There are two basic retionales justifying the inclusion of income as one way to determine a target population for compensatory education. First, family income correlates extremely well with student achievement in reading and mathematics; our earlier review (See Chapter B-I) of studies by Burkhead, Sexton, and others revealed no single socio-economic variable as highly predictive of student achievement as was income, with the possible exception of race. Second, it is expedient to utilize the same measure used for ESEA Title I, which is the most prominent compensatory education effort in the nation today.

There are, however, serious shortcomings in this method of measuring the target population for compensatory education. First, the measurement is arbitrary in that persons only slightly above the maximum income level are completely excluded. Second, regional differences in price level are not taken into account, a factor substanially biasing the measure by inflating, relative to the north, the number of southerners eligible under the income criterion, and biasing in the opposite direction by inflating the number of northerners eligible under the welfare criterion. Third, the welfare measure is suspect because of significant inter-state differences in the way eligibility for welfare is determined. Fourth, the method is further suspect because state welfare eligibility criteria are subject to change over time at the discretion of fifty state legislatures. Fifth, physically handicapped and mentally retarded children are not excluded in the present Title I precedure, although it would be possible to do so on the same basis we excluded the handicapped under our first measure-low achievement. Finally, there will be discontinuities when new income data from new decennial censuses are available.

Examining this last difficulty in more detail, the 1959 Census of Population revealed that almost five million (4,948,140) children were from families with less than $2000 of income. It is expected that this number will decline in the 1970 Census of Population to about two million children.[4] Thus, almost half of the children counted by the present Title I formula would be dropped when 1970 Census data are available. Anticipating this difficulty, and seeking to extend benefits of Title I to a larger population, the Congress has already raised the poverty definition to $3000 and for Fiscal 1973 has raised it still further, to $4000. Because actual funding for Title I falls far short of authorized funding, Congress has deferred the effective date of the increase to $3000 until adequate funding is available.

The present Title I formula, using the $2000 income criterion plus those receiving more than $2000 from welfare, (including children classified as delinquent, neglected, and in foster homes) results in an eligible pupil population of 6,952,297 for 1970, according to Title I officials in the United States Office of Education.[5] If the income criterion is raised to $3000 approximately 2.4 million additional children become eligible.[6] If the income criterion is raised to $4000, the total number of eligible children would rise to approximately 12 million. These figures did not exclude handicapped and retarded children, who constitute about 4% of all children. If this proportion is accurate for poor children, 4% should be deducted from each of the above three estimates. Target populations thus are 6,674,205 using the $2000 income criterion; 8,978,000 at $3000; and 11,520,000 at $4000. Unless the income criterion is raised, the number of eligible children will decline once results from the 1970

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[4] Estimate derived from data in: Bureau of the Census, "Current Population Reports, Consumer Income, Poverty in the United States." Series P-60, #68, (U.S. Government Printing Office, 1969).

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[5] The breakdown is as follows:

In low income families	4,948,140
AFDC	1,780,566
Delinquent	14,100
Neglected	52,866
In foster homes	156,625
	6,952,297

[6] Committee on Labor and Public Welfare, United States Senate, Subcommittee on Education, "County Allotments Under Title I Elementary and Secondary Education Act, for Fiscal Year 1968.", (U.S. Government Printing Office, Washington, 1967).

Census are available; both the cost of living and the level of family incomes are generally rising and it is expected that a steadily shrinking proportion of families will have incomes below $2000 or any other low income criterion. Thus there is an almost unavoidable discontinuity when data regarding incomes are obtained only from a decennial census. Presumably a political adjustment will be made by the Congress to prevent this likely discontinuity from occuring, but it is a serious problem inherent in any formula relying upon income data from the decennial census.

However, these discontinuities will partially be offset by the likelihood that during the next few years there will be a steady increase in the number of children in families receiving more than $2000 per year from AFDC. This expectation is based on the assumption that AFDC benefits will increase and thus bring a larger number of families above the $2000 level in AFDC benefits. It is probable, though, that the number of families whose earnings make them eligible for AFDC will decline; the actual number of persons, age 0-18 living below the $2000 income level declined from 11,386,000 in 1959 to 6,373,000 in 1968. The data do not allow exact predictions as to how these two influences will function during the 1970's, because the former is heavily dependent on political decisions and the latter is heavily dependent on income distribution patterns resulting from the performance of the nation's economy.

Non-Whites and Poor Whites.

A fourth alternative method of estimating the national target population for compensatory education is to include all non-white and poor white children (excluding, of course, mentally retarded and physically handicapped children). We propose this method because it combines the two factors most closely identified by the general public and educational researchers with the twin conditions of socio-economic disadvantage and low educational achievement. Our review (reported in Chapter B-I) of research relating socio-economic and school factors with school achievement revealed no variables as closely associated with school achievement as income and race. It is rare when the judgment of researchers coincides so closely with the public perception of a problem, but that is the case here; low income and racial identity are widely acknowledged by citizens and politicians to be significant influences in shaping the way people live in our society.

Some advantages and disadvantages of this method should be identified. A paramount advantage has already been cited, (high correlation between race, income, and school achievement). A second is simplicity; no complicated statistical procedures are required, although, as we shall indicate, there are problems in data availability. Third, it takes explicit account of generations of damaging discrimination and racism in our society by including all non-whites as eligible for educational services designed to improve their school achievement. Finally, it incorporates variables already used or proposed by the Federal government in school finance formulas designed to provide funds for disadvantaged populations. We have previously explained how ESEA Title I uses income data to determine county entitlements, and President Nixon proposed in 1970 a Federal appropriation of $1.5 billion for fiscal 1971 and 1972 for districts desegregating their schools, or unable to desegregate them. Thus, the criteria proposed here enjoy considerable acceptance as measures of need for compensatory education.

As with the other alternatives, however, there are disadvantages that would be associated with use of a race/income combination criterion of need. First, all the problems associated with use of decennial census data are pertinent here, at least for the income data, and to a lesser extent also for the racial data, although schools now are frequently required to collect certain racial data regarding pupils. Second, it can be charged that an inequity is involved in defining a target population differently for one race than for another; this method would obviously result in some non-whites with high incomes being included within the target population. The reply to this assertion must rely upon the assumption that regardless of income there are damaging intergenerational effects of three and a half centuries of racial discrimination in this society, in which the normal condition for its black population for a period lf almost 250 years was legalized slavery. Few would suggest that blacks and whites with equal incomes have equal chances for success in this society, although many would argue that the society is gradually moving toward such equality of opportunity.

Another disadvantage is that not all non-whites and poor whites do poorly in school. The seriousness of this disadvantage is that we originally defined need for compensatory education as consistent patterns of low school achievement among large groups in the population. Studies of the correlation between family income and student achievement, or race and achievement, vary in predictive success; some account for more than 70% of the variance in achievement due to race and income, while other studies claim as low as 40% accounted for by race and income (see our earlier review in Chapter B-I). Thus, there is clearly not a one-to-one relationship between race and income, and achievement. Nevertheless the consensus of existing findings is that the relationship is quite strong for each variable and is stronger when they are used in combination to predict achievement. Further, they are the strongest socio-economic predictors of achievement known at the time of this writing, and therefore are acceptable for our purposes.

There are problems involved in getting the data needed to make a current national estimate based on this method of defining the target population. Not the least of the problems is that the best source of data regarding the distribution of low income whites and all non-whites in the population is the decennial census. Data for the 1970 Census of Population are being collected and prepared for publication as this Report is being written, so the most recent published Census data are from the 1960 Census. Fortunately, there are reasonably accurate current estimates available, particularly of non-white population. The 1970 population of non-whites in the 0-18 age range is estimated at 11,445,000 persons.[7] The nearest comparable figure for low income whites is that in 1968 there were 6,373,000 whites in the 0-18 age range living below the poverty level.[8] Assuming an equal distribution of poor whites and non-whites within the groups for each year of the age range 0-18, a school age, (ages 5-18), 1970 target population of poor whites is 4,602,715. The comparable figure for non-whites is 8,265,465 for a total 1970 school age compensatory education target population of 12,868,280. Once again, however, this figure includes mentally retarded and physically handicapped children, estimated by the U.S. Office of Education to include 4% of the total population of children. If the 4% proportion is accurate for poor whites and for non-whites, the net target population for compensatory education, using this method, is estimated as 12,453,559.

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[7] U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Population Estimates Series P-25, #381. (Washington, D.C.: Government Printing Office, December, 1967), p.76.

[8] U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Consumer Income: Poverty in the United States, 1959-1968. Series P-60, #68 (Washington, D.C.: Government Printing Office), p. 1.
(The poverty level is defined here by the Social Security Administration as three times the cost of a simple but nutritious diet).

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We conclude this section of the Report by stressing the problems inherent in defining, estimating, and projecting target populations for compensatory education. Earlier in Chapter B-IV we discussed some of these dangers and urged caution in interpreting the estimates and projections that are offered for each of the four suggested alternative ways of measuring the target population. It is interesting to note that the estimated size of the target population ranges between 6,000,000 and 12,000,000 children, so the method of defining and measuring the target population can have an important effect on the size of the estimate. Perhaps the most reasonable estimate and definition now available is the one derived from ESEA Title I, using the $3000 income criterion; a target population of 8,978,000 was estimated for that definition. This represents approximately 18% of the nation's enrolled pupils, K-12, in 1970. The only way of determining how well, or indeed, how poorly, schools are educating the compensatory education target population, however, defined, is by monitoring overtime the actual achievement levels of children within the target population. We have previously noted that the National Assessment Program, scheduled to

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release its first findings one week after this Report goes to press, affords hope that researchers and educational leaders will finally be able to know whether the particular target population needing compensatory education is or is not improving its achievement in key subject areas. Would that this were the case and that the "need" for compensatory education as it is known today diminishes. But if this is not so, and the available evidence suggests that it is not, educators, parents, and political leaders will require ways of identifying groups and children for whom particular educational services are designed and intended. Hopefully, the concepts and procedures used in our study will be helpful in those efforts.

PART C

PROGRAM DESCRIPTIONS

AND

COST DIFFERENTIALS STUDY

BY

ARVID J. BURKE

AND

GERALD CAROZZA

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CHAPTER C-I

PLAN OF STUDY

This study conducted at the State University of New York at Albany had two related purposes: to describe the inputs for selected exemplary compensatory education programs and to estimate the cost differentials of such programs relative to the cost of regular school programs.

The selection of states and school systems was done in terms of common procedures prescribed by the National Educational Finance Project and certain criteria and procedures approved by the National Advisory Panel for the study and by the Project Director. These are given in the Introduction.

The estimates of cost differentials also were made according to common procedures developed by the National Project and will be summarized later. The difficulties encountered in obtaining data and in making such estimates perhaps may have greater implications for policy making than the estimates themselves as the last chapter will indicate.

Selection of States

The study was conducted largely in five states: California, Florida, Michigan, New York, and Texas. Another group of four were selected to check the findings from the five. These four included Connecticut, Indiana, Tennessee, and Wisconsin.

The key criterion in selecting states prescribed by the Project is the existence of exemplary programs. Staff had hoped to limit the study to programs selected as exemplary by the American Institutes for Research in the Behavioral Sciences in the studies cited in the Introduction. These were selected as exemplary upon the basis of rigorous and uniform criteria. However, this approach was found impractical for two reasons:

1. After eliminating programs for which the necessary cost data could not be obtained, the number of school systems was less than the number required by the National Project. Ten had to be dropped, leaving only eleven school systems.

2. Those remaining were large city school systems. Other criteria had to be considered.

According to the Project plan the school systems selected had to represent a variety of conditions in terms of socio-economic conditions, size, location, and demographic characteristics. Furthermore, the programs of compensatory education selected had to be in operation for 1968-1969, data had to be available, and the states and school systems selected had to be willing to supply the data.

The American Institutes' selection of exemplary programs was confined to twenty-one school systems in nine states and the District of Columbia. The programs in Alabama, District of Columbia, Florida and Illinois had to be eliminated because the data for 1968-1969 could not be obtained. The other six states were kept in the study (California, Connecticut, Indiana, Michigan, New York, and Wisconsin).

They also had been recommended for study by a majority of the Advisory Panel. Florida was added on Panel recommendation. Tennessee and Texas were added to obtain geographic and regional spread, after consultation with the staffs of the National Project and of the Bureau of Research and Division of Compensatory Education of the United States Office of Education.

No states in the West North Central and Rocky Mountain areas were included because they did not meet the criteria for selection approved by the National Advisory Panel.

Selection of School Systems

Data were obtained from twenty-six school systems[1] in the nine states. They are:

State	Number	School System
California	5	Los Angeles*, Oakland*, Paramount, Pomona*, and Redondo Beach
Florida	4	Columbia, Dade, Duval, and Holmes Counties
Michigan	4	Big Rapids, Detroit*, Grand Rapids, Ypsilanti
New York	5	Buffalo*, Cobleskill, New York City*, Rochester, Syracuse
Texas	4	Austin, Brenham, Galena Park, Waco

Test Group

Connecticut	1	Hartford*
Indiana	1	Indianapolis*
Tennessee	1	Overton County
Wisconsin	1	Milwaukee*

*American Institutes' Selection

Under the National Project procedures it was essential to have at least four school systems from each of at least five states. California is the only state with four or more school systems with exemplary programs selected by the American Institutes for Research in the Behavioral Sciences. It had five (Fresno, Los Angeles, Oakland, Pomona, and San Jose) for which data could be obtained, but all of these were large cities. Fresno and San Jose were omitted from the study in order to get a representation of smaller places. After these two were dropped, nine school systems with programs selected as exemplary by the American Institutes remained in the study.

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[1] Data from Cumberland County, Tennessee were lost in the mail.

The next step in the selection was to examine the recommendations of the National Advisory Panel. The places recommended by a majority of them tended to be large urban centers selected by the American Institutes. Duval County, Florida, however, was added on Panel recommendation. In order to meet the other criteria established by the Project, staff had to turn to the recommendations of specialists in the state education departments.

The following seventeen places were selected on the latter basis: In California, Paramount and Redondo Beach; in Florida, Columbia, Dade, and Holmes Counties; in Michigan, Big Rapids, Grand Rapids, and Ypsilanti; in New York State, Cobleskill, Rochester, and Syracuse; in Texas, all four school systems; and in Tennessee, Cumberland and Overton

Counties.

Sampling Notes

The selection of states and school systems in terms of many variables as well as availability of data, willingness of school systems to cooperate, and resources available for the study does not assure that the programs selected are exemplary according to the same criteria or that the states and school systems are representative of the nation or of the particular states.

The programs included in the study, nevertheless, have been carefully selected. It is assumed that the programs selected by the American Institutes were exemplary in terms of the criteria used by them. In selecting other programs staff relied largely upon subjective recommendations of compensatory education specialists. The programs so recommended are assumed to be outstanding for the particular type of school system in the particular state involved. It is not assumed that they are exemplary according to uniform standards as in the case of those selected by the American Institutes.

It is assumed that the selection is sufficiently varied to provide a preliminary check of the assumptions of the National Project that cost differentials for compensatory education can be estimated (if not determined) by states and that the cost differentials will not vary markedly among school systems (at least within a particular state). It is not assumed that the final selection of states and of school systems is representative of the United States nor even of the states themselves.

Common Procedures

Procedures for program description were left largely to the staff of the satellite study; but detailed procedures for estimating cost differentials were established by the National Educational Finance Project. They are reproduced here.

The Project in its preliminary publications described this phase of the study in these terms:

> "COLLECTION OF DATA
>
> Data concerning characteristics of exemplary educational programs for the target population under study should consist primarily of careful, comprehensive descriptions of the instructional arrangements, i.e., the configuration of resources, both human and material, which are being applied to the program. Particular attention should be paid to those aspects of the instructional program which differentiate it, cost-wise, from the program provided for regular pupils. (This will also require a description, though considerably less detailed, of the program provided for regular pupils.) Examples

of the program elements which should receive specific attention in describing programs for the target population under study are:

I. Personnel
  a. Classroom teachers
  b. Other specialized professional personnel (for example, therapists, social workers, on-the-job supervisors, psychologists, counselors, etc.)
  c. Other personnel (for example, clerks, secretaries, teacher aides, etc.)

II. Instructional Supplies and Equipment
  a. Special books, films, kinescopes, or other instructional aids
  b. Special equipment required
  Data concerning the initial cost and normal lifetime of capital equipment required for the program should be obtained and extra costs should be estimated on a depreciation basis.
  c. Other supplies and equipment

III. Physical Plant
  a. Any special modification of the physical plant which are required (e.g., elevators, ramps, hydro-therapy units, etc.)
  b. Any special space requirements not accounted for by the class size (e.g., additional square footage which may be required in shops, speech classrooms and the like)

IV. Supporting Services Unique to the Program (for example, any services provided for the target population, but not for regular pupils, such as transportation, health, counseling, food services, etc.)

V. Other Resources Unique to the Program

Actual cost data concerning local school district expenditures for the regular program and for the educational programs for the target population with which you are concerned should be obtained as an additional source of information. It is important to note, however, that detailed cost data on every facet of the program under study are neither necessary nor desirable. Such data would be difficult to interpret, since they are likely to reflect uniquely local economic conditions as well as 'artificial' cost factors due to the training and years of experience of a particular classroom teacher resulting from the use of a single salary schedule. It is crucial that cost differentials be based on only those factors which are germane to the program being studied. (For example, additional costs which reflect additional training and experience of a classroom teacher should be included in the cost differential only if such qualifications are required in the program being studied.) While 'audit type' data concerning expenditures is unnecessary, expenditures by local districts for broad accounting categories (such as personnel, supplies, equipment, etc.) for regular and special programs should provide useful inputs to Phase IV, as well as being useful for estimating cost differentials.

The above data obtained from the sample of districts, together with such data as may be available from the state department of education in each state, should be used to develop estimates of the cost of the program under study relative to the cost of the regular program. Such estimates, although they will be derived from actual costs, should be expressed in the form of ratios. To the extent warranted by the data, these ratios may differ from one type of district to another, e.g., sparsely populated districts might have a slightly different cost ratio for certain types of programs than would densely populated districts. The use of ratios will make it possible to project program costs on the basis of various sets of assumptions in Phase IV of the project."

Later the National Project staff issued the following directions for handling cost data and computing cost differentials:

"COMMON PROCEDURES FOR COMPUTING COST DIFFERENTIALS
IN EACH PROGRAM AREA

(These procedures should be followed by all Directors of

Satellite Projects of NEFP in calculating the cost differentials of program areas)

1. The regular or basic program includes total students in average daily membership in grades K-12 less those classified in special program areas in the NEFP design. The special program areas usually included in the ADM reported for a school system are: early childhood education, exceptional education, compensatory education and vocational and technical education. If adult and continuing education is included in the ADM, it should also be deducted. If the total average daily membership of the system includes pre-kindergarten membership, that membership should also be deducted.

2. Use average daily membership to compute equivalent full-time students in terms of the proportion of school day they are served by the program area. For example, a vocational student may be served by the vocational program for 1/2 the school day and by the basic program for 1/2 of a day. Therefore, it would take 2 vocational students to make an equivalent full-time student for the vocational program.

3. The following data should be collected to compute the cost differentials.

   a. The total ADM for the school system.
   b. The equivalent full-time students in ADM in each program.
   c. The equivalent full-time instructional staff allocated to each program.
   d. Salaries of staff directly assigned to each program. Get data on actual salaries paid in each program area and also the average teacher salary for the school system. See item 4 below.
   e. Allocate salaries of the supporting staff utilized by each program.
   f. Allocate all other current expenses to each program area in proportion to the full-time instructional staff allocated to that area unless you have good reason to allocate certain other current expenses by

a more refined method. For example, transportation costs for exceptional children might be more than the allocation method suggested provides.

g. Compute depreciation on capital outlay allocated to each program.
   (1) Building space at an annual 3% of replacement cost.
   (2) Equipment at an appropriate annual percentage depreciation for the area you are studying.

h. Compute cost for the basic program for grades 1-12 and also for each NEFP program area.
   (1) Divide the total cost of the basic 1-12 program by the equivalent full-time ADM for the basic program for grades 1-12.
   (2) Divide the cost of each program area by the equivalent full-time ADM for that program area.
   (3) Compute cost differentials in terms of ratios by dividing the cost for per pupil in ADM for each program area by the cost per pupil in ADM for the basic program for grades 1-12.

4. Other instructions:

a. Obtain the total current expenses per pupil in ADM for each school system you are studying.

b. Compute the pupil teacher ratio for each program area by dividing the equivalent full-time ADM for each program area by the equivalent full-time instructional staff assigned to that program area.

c. Use 1968-1969 data if possible. Sometimes you may find it more convenient to use 1969-1970 data. Since we are concerned primarily with computing cost differentials in selected school systems, it will not invalidate your data to use 1969-1970 data instead of 1968-1969 data.

d. Compute instructional salaries on two bases as follows:
   (1) Salaries actually paid in each program area.
   (2) The full-time instructional staff in each program area multiplied by the average salary of teachers for the school system.
   (3) Calculate your cost differentials on two bases:

(a) Salaries actually paid to the teachers in each program area.
(b) Assume that the salaries in each program area are paid the same as the average for the total school system

These two alternative methods of calculating cost differentials will reveal whether there is a consistent higher or lower cost for teacher's salaries in respective program areas.

Note: You will observe that all cost differentials are to be computed in relationship to costs per pupil in ADM for the basic program in grades 1-12. This procedure will avoid the necessity of allocating costs between elementary and high schools."

The common procedures subsequently were interpreted to mean "instructional staff" where "teacher" is used and "instructional staff salary" where the terms "teacher salary", "salaries", or "average salary of teachers" are used. Supporting staff was defined to include highly specialized positions, such as psychologists, used in a program.

It should be noted that the estimation of regular school program costs including depreciation was left largely to the judgment of each satellite study staff and/or the staff in the school system supplying the data.

Data Collection

Two basic data gathering forms were developed on the basis of data from California, Illinois, and New York State, tried in the cities of Schenectady and Troy, and revised further after their application in Buffalo, Rochester, Syracuse, and Hartford. Form I is designed to obtain estimates of the cost of regular school program and of the total compensatory education program. Form II is used to obtain descriptive and cost data for the selected compensatory education program. The forms are appended.

Data required to complete the forms were obtained in the following manner: (1) analysis of publications provided by the state education departments and/or school systems; (2) on site visits to state education departments and school systems; (3) data supplied by contact persons named in each school system; and (4) subsequent telephone calls or correspondence to fill the gaps, verify questionable items, and check inconsistencies.

Staff were directed to obtain copies of documents or other data describing explicitly the following characteristics of each program selected for study:

1. Overview of the program giving a brief description of the treatment.

2. Details on the type of pupils being served by the program, including the criteria employed to select students for participation in the program and the estimated number of students eligible for participation.

3. The assumptions and objectives of the program, particularly those that have been clearly established.

4. The activities, techniques, or methods employed to meet the objectives.

5. How these activities, techniques, or methods differ from those generally used by the local school system.

6. Evaluation of the results of the program, including a description of the evaluation procedures used.

Staff also were directed to obtain a summary of the total program of compensatory education in each place visited.

All on site visits were made by the Albany staff who had participated in the development and use of the data gathering forms. In those places where other satellite studies also were working, arrangements were made for an exchange of data on the regular school program and/or total compensatory education programs. Thus, in Dade and Duval Counties, Florida, and in Milwaukee, Wisconsin our staff cooperated with the staff of the Exceptional Children Program Study and in New York City with the staff of the Early

Childhood Education Study. Data from Tennessee were provided by local contact persons with staff assistance by telephone.

After program descriptions were completed and cost computations made for the regular school program, for the total compensatory education programs, and for the selected programs, both were sent to the superintendents and to the contact persons in the school systems for verification or modification.

CHAPTER C-II

PROGRAM DESCRIPTIONS

The study is based upon thirty-one separate program descriptions for the twenty-six school systems. Those in which more than one program are described are: Hartford, Connecticut (2); Buffalo, New York (4); and Milwaukee, Wisconsin (2). Only four of these places had a single compensatory education program as this chapter will show. In large cities like New York and Los Angeles the programs are many and the interrelationships among them often are complex. The American Institutes for Research in the Behavioral Sciences observed that:

> "A major problem in the larger cities, e.g., Los Angeles, was the extreme difficulty, or in some cases, the impossibility of untangling the complex net of interwoven programs to such an extent as to permit the tracing of measured benefits to any single program..."[1]

No attempt was made to describe in detail the total compensatory education programs of school systems with two or more programs. Rather at least one such program was selected for description. Wherever possible these were the ones selected by the American Institutes; but data could not always be obtained on all their selected programs in large places like New York City.

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[1] A Study of Selected Exemplary Programs for the Education of Disadvantaged Children, op. cit., p. 32.

Major Inputs Studied

Staff on visiting a school system concentrated upon the description of the selected program or programs. The data gathering forms were designed primarily to discover those characteristics (or inputs) of the particular program that might have cost consequences, specifically the following:

1. Additional Staffing as exemplified by use of specialists, regular classroom teachers, and supporting non-instructional staff personnel beyond what would be used in the regular program.
2. Different Staffing Qualifications as exemplified by hiring staff with higher qualifications than would be employed in the regular program.
3. Additional Time as exemplified by a longer school day, school week, or school year than that for the regular program.
4. Additional Pupils as exemplified by increased numbers of pupils attending school than would attend the regular school program.
5. Additional Materials as exemplified by the use of more or different instructional space, equipment, or supplies than are used in the regular program.

6. Additional Auxiliary Services as exemplified by additional auxiliary services such as special transportation and food service, beyond what is provided in the regular program.

7. Various combinations of the foregoing.

Descriptive data also were sought on the target population served, the purposes of the program, its place in the total program of compensatory education, its relationship to other programs, its distinguishing features, and evaluation of its effectiveness.

Problems of Obtaining Data

Certain major problems encountered in obtaining descriptive data should be noted in interpreting the results of the study:

1. It was difficult to find a firm basis for estimating the amount of time pupils spent in the programs.
2. Staff does not feel confident about the estimates of time spent in a program by supporting personnel, e.g., office workers.
3. Records of capital outlays were particularly difficult to reconstruct because the outlays are spread over a number of years, because they often are comingled with outlays for other programs, and because the facilities or equipment often are used by more than one program.

4. The estimated inputs of supplies and auxiliary services beyond what would be used in the regular program are very subjective.

5. Little data were obtained on differences in staffing qualifications that might cause cost differentials and on increased attendance resulting from the program.

6. The most reliable data obtained were those involving additional time devoted to a program, e.g., after school.

Format for Descriptions

The program descriptions were written in brief form with the intent of identifying and describing the foregoing inputs. Each description was written to show briefly:

1. The total program of compensatory education of which the selected program is a part;

2. The purpose or purposes of the selected program;

3. The target population served;

4. The distinguishing features of the program;

5. The major inputs in physical and quantitative terms;

6. The evidence of effectiveness of the program.

Programs selected as exemplary by the American Institutes for Research in the Behavioral Sciences and included in the study are described in considerable detail in their reports. However, their purpose is to make possible replication. In the case of this study, the purposes are different: (1) to determine any changes that might have been made in such programs during 1968-1969, (2) to obtain evaluative data on program effectiveness for that year, and (3) to concentrate on the inputs that might have implications for cost differentials.

Program Types

It is hard to judge how representative the selected programs are of compensatory education in the nation as a whole, or in any particular state studied. As indicated on the table below, pre school programs no doubt are under represented, but this choice is deliberate. The Project has a separate study of pre school programs. The majority of programs are at the elementary school level. The smaller proportion at the high school level may be indicative of what exists in practice as the table on the next page suggests.

School Level	Number of Programs	
	This Study	American Institutes' Studies
I Pre School	4	10
II Pre School and Elementary	4	5
III Elementary	16	10
IV Elementary and Secondary	3	3
V Secondary	4	4
Total	31	32

By states the distribution for the same school levels is:

State	Frequency by Level				
	I	II	III	IV	V
California	1	1	3	-	-
Florida	1	1	-	2	-
Michigan	1	1	1	-	1
New York	1	1	4	-	2
Texas	-	-	3	-	1
Other States	-	-	5	1	-

No secondary school program was described in California; and no pre school program in Texas or in the four states used as a test group. Other factors in the selection of school systems account for these decisions.

Classification of programs by school level is not very descriptive of differences in inputs as the section on inputs will show.

Total Programs

An examination of the program descriptions appended to this report shows how varied the total programs of compensatory education can be, especially in large cities. Attention is called to the programs in Los Angeles, Dade County (Miami), New York City and Milwaukee as examples. It would have been impossible with the resources available (if cooperation could have been secured) to describe in detail the inputs for all such programs in the school systems studied. This was illustrated by the attempt to obtain descriptions of four of the twelve programs in Buffalo, New York. In New York City it was difficult to get the data required on one of its hundreds of programs.

In four of the school systems studied the program selected is the total compensatory education program (Paramount Unified School District, California; Big Rapids, Michigan; Overton County, Tennessee; and Brenham Independent School District, Texas). In two others the selected program represents a substantial portion of the total program (Redondo Beach, California; and Columbia County, Florida). In most others the program selected is a small portion of the total, the proportion tending to decrease as the size of the school system increases.

It was impossible to obtain detailed descriptions of the total programs in places with two or more programs. None of the twenty-six school systems had a pupil accounting system that showed how pupils divided their time among such programs. Usually no one person in a school system was familiar with the specifics of all programs. If resources had been available for contacting the many staff involved, it is doubtful that enough cooperation could have been secured to obtain the data. Supplying the data would have required too much time. The larger the school system the more difficult it was to get cooperation. Staff were too hard pressed for time.

Purposes of Programs

No two of the thirty-one programs had exactly the same stated objectives. Although twenty-four of them included reading skills in the statement of purpose (explicitly or implicitly), it is found that:

> 11 included it as part of the objective of improving achievement often combined with one or more other objectives.
>
> 8 combined the reading objective alone with one or more other objectives;

4 had specific or narrow but differing reading objectives; and

1 had a multiple list of reading objectives.

Although cognitive learning had a high priority in the purposes of all but a few of the programs studied, no two of them are seeking exactly the same outcomes even in this respect.

Among other purposes usually appearing in combination with others, these appeared most frequently:

Purpose	Number of Programs
Change attitude toward success or failure	6
Improving self image	5
Change attitude toward school and learning	4
Improve health	4
In-service education of staff	4
Parent education	3
Prevent or decrease dropouts	3
Cultural enrichment	3

Among the other purposes mentioned at least once are curriculum development and improvement, increasing educational opportunity, testing and diagnosis, guidance and counseling, improved attendance, character development, occupational skills, human relations, integration, and social and emotional adjustment.

Population Served and Distinguishing Features

As in the American Institutes' studies most programs serve negroes from low income families and/or neighborhoods. Many others serve a mixed population with a high proportion of negroes. Over one fourth of the programs served a predominantly white disadvantaged clientele. Using approximately the same classifications as the Institutes', the target population served by the thirty-one programs may be grouped as follows:

Predominant Target Population (over 2/3)	Number
Negro	12
Negro and White	7
White	7
Negro and Spanish speaking	3
White and Spanish speaking	1
Spanish speaking	1

With few exceptions the pupils served by the selected compensatory education programs also are served by other school programs including other compensatory education programs. No state or school system studied maintained records of how pupils divided their time among different programs during the school day. What the records did show is the number reached by a given program.

Estimates of full time pupil equivalents were obtained from persons directing or operating the program selected. Some indicated that their estimates were really informed guesses. Others expressed reservations about the accuracy of their estimates. Staff makes the following observations:

1. Data on pupils served may be accurate only for programs not operated during the school day but operated as distinctly separate programs during the summer, after school, or during pre school years.
2. Other estimates of full time pupil equivalents served by the programs probably may be less subject to error in small school systems having relatively few overlapping programs.
3. Other estimates of full time pupil equivalents served may be most subject to error in large school systems with many overlapping programs.

Program Inputs

It was assumed in the planning stage that programs could be classified by types of major inputs, e.g., additional staffing beyond what is provided in the regular school program. This assumption did not hold. The programs studied usually involved a variety of combinations of inputs. Additional staffing was present in all combinations. The most frequent combinations in terms of the categories listed are:

Combination*	Frequency
1+4+5+6	4
1+5+6	4
1+4+6	3
1+5	3
1+2+5+6	2
1+4+5	2
1+6	2

*The numbers mean:

1. Additional Staffing
2. Additional Staffing Qualifications
3. Additional Time
4. Additional Pupils
5. Additional Materials
6. Additional Auxiliary Services

There were six other combinations that occurred only once: 1+3; 1+3+4; 1+3+5; 1+2+3+6; 1+2+4+5+6; and 1+2+3+4+5+6. In the remaining five cases the only additional input reported was staffing, but the relative amounts and kinds of staff were not the same in any two cases. Of course, staffing variability was true in the other twenty-six cases too as shown below.

Thirty selected programs reported the employment of additional teachers. The input of these ranges from 0.1 to 29.0 per 100 pupils. The middle case falls at 6.3. The deviations from this point are:

Additional Teachers Per 100 Pupils	Number of Selected Programs Having
Less than 2	2
2.0 - 3.9	3
4.0 - 5.9	7
6.0 - 7.9	6
8.0 - 9.9	3
10.0 - 11.9	2
12.0 - 13.9	1
14.0 - 15.9	1
16.0 - 17.9	2
18.0 - 19.9	-
20.0 - 21.9	-
22 or over	3
Total	30

Most of the cases deviate by wide enough margins, so that large differences in cost differentials can be anticipated. In at least a third of the programs extremely high cost differentials can be anticipated from the data.

Although one program had as its purpose the improvement of reading skills without using additional resources, all thirty-one programs were characterized by the employment of additional staff as may be seen in the table below. The range in input of additional staff (including teachers) was from .9 to 82.0 per 100 pupils in the program. The highest inputs tended to be in those programs employing non-professionals.

Additional staff other than teachers range from low paid non-professionals to high paid specialists. The mix of each is different for every program observed. When combined with the factor of additional teachers it tends to reinforce the expectation that cost differentials will not tend to cluster around a central tendency for the selected programs.

Additional Staffing* Per 100 Pupils	Number of Selected Programs Having
Less than 4	1
4 - 7.9	4
8 - 11.9	7
12 - 15.9	2
16 - 19.9	6
20 - 23.9	1
24 - 27.9	2
28 - 31.9	1
32 - 35.9	1
36 or over	6
Total	31

*Inclusive of teachers

Table C-I gives the staffing inputs for these programs. For further detail see the appended descriptions.

It has been noted that the estimates of staffing and pupils for total programs of compensatory education are more tenuous than those for the selected programs. Nevertheless, a wide range with considerable deviations from measures of central tendency exist in estimated staffing ratios for such programs in the twenty-six school systems (See Table C-13).

Not only do staffing inputs differ greatly among the selected programs, but also the relative proportions of staff time and other types of resources, are highly variable. Yet, with only one exception, the major input was staffing. The exception is Project Concern in Hartford, Connecticut, where transportation was a large input.

Inputs other than additional staff are extremely varied. The proportion of the total resources allocated to any one category usually is less than 10 percent. However, there are four school systems that allocated more than 10 percent of the total resources to transportation as shown in the accompanying table:

School System	Percent of Total Outlay	Input
Hartford (Project Concern)	35.7	Transportation
Waco	27.2	Transportation
Rochester	17.0	Transportation
Grand Rapids	13.3	Space Rental
Waco	12.6	Food Service
Big Rapids	10.7	Transportation

It should be noted that several school systems incurred large outlays for capital equipment, e.g., electronic reading laboratories. However, the annual depreciation charges were not large enough to exceed 10 percent of the total annual allocations of resources.

Other classes of inputs represented small percentages of total input. The two categories mentioned most frequently are additional materials and additional auxiliary services. Additional materials appear as an input in eighteen of the thirty-one programs. No two programs had identical additional materials input. The types of materials occurring most frequently are electronic laboratories; language masters; controlled readers; tape recorders; filmstrip projectors; and moving film projectors. Some of the other additional material inputs are closed circuit television; electronic typewriters; locally prepared reading materials; and polaroid cameras.

Additional auxiliary services appear in seventeen of the thirty-one programs. Fourteen provided additional transportation, and three provided additional food service. Two programs had both additional transportation and additional food service.

The difficulties encountered in obtaining data on capital outlays were mentioned early. These estimates are not very firm. It also has been noted that there often is a problem of assessing how much of the inputs of supplies and auxiliary services are beyond what would be provided under the regular school program.

Program Evaluation

The fact that all programs studied had different purposes makes it impossible to evaluate the relative effectiveness of the variety of combinations of personnel and material inputs employed to accomplish the purposes. It is not possible to determine from the data what is the least resources required to accomplish a given objective. The data simply do not lend themselves to such a cost-effectiveness approach.

Indeed, the data on effectiveness of the programs are not such that any generalizations about program effectiveness can be made with confidence. Many but not all of the programs selected by the American Institutes for Research in the Behavioral Sciences have followed evaluation procedures which meet their criteria. The fact that some have not is due to the fact that the evaluation data used here are for 1968-1969.

The Institutes' format for a satisfactory evaluation procedure may be summarized briefly under eight parts:

1. A description of the new element, or treatment of method which was hoped to be shown superior to an alternative and of the specific changes it was expected to produce, preferably with a linking rationale;
2. The population to whom the treatment could be applied or who could be expected to benefit from it;
3. The smaller, practical number (the sample), chosen from the population for purposes of demonstration and the way in which it was chosen;
4. The reference point of departure (base) or the way in which it was obtained; the beacon from which movements could be shown;
5. Both the instruments used to detect change and suitable summaries of values obtained;
6. A control group or other means for determining or interpreting any differences found in movement from the base;
7. Separation of significant results from chance or fortuitous ones on a probabilistic footing; and
8. Discussion of whether or not the real gains are trivial or important.[2]

None of the other evaluations of programs meet these criteria. Some are subjective. Those that use objective data seldom provide control groups or other means for interpreting the gains shown. With the kinds of program overlaps that exist among compensatory education programs and other school programs the attributing of results or gains to any one program cannot be done with precision.

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[2] op. cit. (1968), pp. 19-20.

Staff has summarized briefly the data provided on program evaluation. What they show are the differences that exist in evaluation. Some devoted a considerable portion of their resources to evaluation. Others allocated very little to this phase. It is not assumed that these data by themselves will demonstrate program effectiveness.

Conclusions

The assumption that compensatory education generally can be treated as a distinct or discrete program appears questionable in terms of the programs described here. There usually is much overlapping among such programs as well as with other school programs or services.

The lack of accounting records on how pupils divide their time among overlapping programs and on how resources are used by overlapping programs means that there seldom is a firm basis for either estimates of full time equivalents of pupils served by different programs and/or estimates of resources allocated to the various programs. The larger the school district the less confidence can be put in such estimates. The estimates are least reliable where the target population tends to be concentrated.

The differences in purposes are such that variability in inputs is to be expected. No two programs had exactly the same purposes. Differences in purposes suggest that cost differentials for compensatory education might differ significantly among school systems. The objectives are sufficiently different in all cases to call for different allocations of resources. It is possible too that inputs might vary even if purposes were the same, because of the lack of evidence on the most effective ways of accomplishing a purpose under given conditions and because conditions did differ considerably in the places visited.

The variability in the combinations of inputs found in the thirty-one programs described make it appear unlikely that a single descriptive statistic on cost differentials for such programs will be found. It also would appear likely that the assumption that cost differentials would not vary significantly among school systems is not likely to hold true. These two observations will be examined further in the next chapter.

It also is improbable that the thirty-one programs described reveal the true extent of the variability in compensatory education program inputs. For example, it was not possible by our deadline to obtain data on one of the most elaborate programs in New York City and in other large cities.

Except possibly in the case of some programs selected by the American Institutes for Research in the Behavioral Sciences, the data on program evaluation by themselves usually are not sufficient to demonstrate program effectiveness. Indeed in all cases it may not be possible to isolate selected program effects from those of other school programs.

Table C-1 lists the selected programs with a brief identification of the program type. It gives the estimated staffing input per 100 pupils for each. Pupils, teachers and staff are given as full time equivalents. The basic selection of states appear first followed by the test group. Programs are described in the same order in the Appendix.

TABLE C-1

ESTIMATED ADDITIONAL STAFFING PER 100 FULL TIME EQUIVALENT STUDENTS IN SELECTED COMPENSATORY EDUCATION PROGRAMS

School System		Program Type*	Number Per 100 Pupils		
			Teaching Staff	Other Staff	Total Staff
Los Angeles, Cal.	II	Reading (Mexican-Americans)	.9	-0-	.9
Oakland, "	I	Pre school	6.5	12.5	19.0
Paramount, "	III	Total Compensatory	.1	4.5	4.6
Pomona, "	III	Augmented Reading	4.5	41.2	45.7
Redondo Beach,"	III	Reading Achievement	6.0	1.2	7.2
Columbia County, Fla.	IV	Reading and Special Services	10.2	8.4	18.6
Dade County, "	II	Cultural Center	2.3	4.3	6.6
Duval County, "	I	Reading and Cognition	4.5	6.3	10.8
Holmes County, "	IV	Reading	5.0	5.0	10.0
Big Rapids, Mich.	II	Pre school (Total)	11.5	38.5	50.0
Detroit, "	III	Communications Skills	17.6	20.6	38.2
Grand Rapids,"	V	College Fields	8.8	-0-	8.8
Ypsilanti, "	I	Pre school	24.0	58.0	82.0
Buffalo, N. Y.	I	Pre school	6.4	8.7	15.1
Buffalo, "	III	After School	5.6	10.5	16.1
Buffalo, "	V	Language Arts	8.9	.9	9.8
Buffalo, "	III	Reading and Math	23.0	5.1	28.1
Cobleskill,"	V	Mentally Handicapped	6.7	4.0	10.7
New York, "	III	After School	2.2	33.3	35.5
Rochester, "	II	Enrichment	9.7	14.4	24.1
Syracuse, "	III	Individualized Help	4.1	19.4	23.5
Austin, Texas	III	Remedial Reading	29.0	33.1	62.1
Brenham, "	III	Total Compensatory	4.0	12.5	16.5
Galena Park,"	III	Small Classes	6.3	1.5	7.8
Waco, "	V	Summer School	6.0	4.3	10.3
Hartford, Conn.	III	Integration	3.8	4.9	8.7
Hartford, "	III	Intensive Reading	13.3	10.8	24.1
Indianapolis, Ind.	III	Tutorial Reading	-0-	56.6	56.6
Overton County, Tenn.	II	Total Compensatory	4.0	9.0	13.0
Milwaukee, Wis.	III	Elementary Reading	16.0	2.0	18.0
Milwaukee, "	III	Speech and Language	15.1	1.2	16.3

*Roman numbers designate grade level as on page 21 summary

CHAPTER C-III

COST DIFFERENTIALS

The program descriptions suggest that compensatory education may not be a discrete program for which accurate cost differentials can be determined. They further suggest that cost differentials for compensatory education might vary widely with no very meaningful central tendency. Thus, the assumption that cost differentials for compensatory education will not vary significantly among school systems might not be tenable, at least in terms of the programs described in this study.

These tentative observations were examined in terms of the cost differential estimates for the thirty-one programs previously described. Specifically three such estimates were analyzed: (1) differentials between (a) the selected programs of compensatory education and (b) other compensatory education programs where two or more are provided in a school system, (2) differentials between (a) and the regular school program, and (3) differentials between (b) and the regular school program.

The study does not deal with the question of whether cost differentials may vary over a period of time. Nor does it show whether they vary for programs with similar purposes. It deals with the estimated cost differentials for selected programs with differing purposes during a single year (1968-1969) in nine selected states and twenty-six selected school systems.

Data Sought

Forms I and II appended were designed to obtain certain comparable 1968-1969 expenditure data for the selected programs, the total programs of compensatory education, and the regular school program. For selected programs these data were requested:

1. The prorated salaries of all staff assigned to a program for that proportion of their time actually devoted to the particular program;
2. The actual current expenditure for other inputs;
3. The amount of capital outlays chargeable to the program as a basis for computing annual depreciation.

The forms did not request similar data for other special program areas nor for the regular school program.

The preliminary studies had indicated that such data were not usually obtainable. Staff, nevertheless, were instructed to seek such data during site visitations. In addition the following expenditure data were requested for 1968-1969:

1. Salaries of teachers by the specified program areas;
2. Salaries of other professional employees;
3. Salaries of non-professional employees;
4. Rate used to compute social security and retirement contributions by the employer; and
5. Current expenditures for all programs.

The forms called for obtaining average daily membership expressed as full time equivalents of regular day school membership (FTE) for purposes of computing expenditures per pupil and cost differentials for the selected programs.

Data Obtainable

No accounting system was found that provided data on FTE average daily membership by the various program areas. It was possible in all instances to obtain enrollment and current expenditure data for the school system as a whole for the 1968-1969 school year. In some cases membership data also were available for the school system. Although it generally was possible to find the number of pupils served by a particular program, data for computing full time pupil equivalents were not found.

Although some school systems had certain expenditure breakdowns for the selected programs, in most cases complete data were lacking or were combined with those for other programs. Expenditure breakdowns for a program where available usually were for federal funds only.

The data gathering difficulties were similar to those encountered by the American Institutes for Research in the Behavioral Sciences. In its 1969 study it gathered very little data on expenditures saying that

> "This heading is not intended to provide a detailed account of all expenditures associated with a program. Such figures are rarely obtainable."[1]

Method of Estimating

Completion of the study required a method of converting the number of pupils served by a program to full time pupil equivalents and a way of allocating total teaching staff for all programs to a particular program. The first was accomplished by use of an estimated ratio (the estimated proportion of full time the average pupil was served by the program). The second was accomplished by identifying the total staff assigned to a selected program and then applying an estimate of how much time each spent in the program. For the total compensatory education program, other special program areas, and regular school program teachers were allocated by using the estimated proportion of time spent in each program area.

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[1] op. cit. (1969), p. 12.

The estimates of these two critical ratios for the selected compensatory education programs were done largely by staff during site visitations (except in Tennessee). This procedure provided an opportunity to raise questions with persons familiar with the programs and to check available records. It also provided contacts for further consultation as the study progressed.

The greatest problem encountered in estimating current expenditures for the selected programs was that of apportioning salaries of staff other than full time classroom teachers assigned to them. The fact that a position was charged to a program did not necessarily indicate that the person devoted full time to that program. Many others devoted varying amounts of time daily or weekly to a program. Deciding upon an appropriate annual division of salary in such instances could not be done with exactness. No doubt, there are instances where time charged to a program was not really chargeable and other instances where persons rendering service to a program were not reported. It is possible that these counteract each other to some extent.

Similar problems were encountered in apportioning instructional supplies to the program. It is unlikely that instructional materials charged to programs always were used for the exclusive benefit of the students in the program. Deciding upon what were additional instructional materials for a program and not regular school supplies could not be done with exactness.

Expenditures for additional auxiliary services were difficult to isolate. With few exceptions, expenditures for transportation and food service for a program were combined with those for other programs making it necessary to estimate the portion to be allocated to a selected program.

The estimates for the total compensatory education program and for the regular school program were done largely by a contact person in a school system. This procedure had to be followed because of the many programs often involved and the number of persons who had to be consulted. Staff work usually was confined to written or telephone inquiries about estimates that appeared to be questionable. The larger the school system the more difficult it was to obtain such estimates. In Dade County, Milwaukee and New York City no estimates for their total compensatory education programs were secured. In New York City and Dade County regular school program current expenditures could be secured.

It was anticipated upon the basis of preliminary study and field testing of data gathering forms that it would be unwise to attempt to estimate the salaries of all staff for all program areas. It is for this reason that the estimates for total compensatory education and the regular school program were based upon classroom teachers salaries only. They tended more often to devote full time or larger blocks of time to a particular program than did other staff. It proved to be difficult enough to obtain the estimates of teachers' salaries by program areas.

The attempt to estimate cost differentials for capital outlay was abandoned early in the study for four reasons. (1) It was difficult to get the data for back years. (2) Where obtainable it often was impossible to segregate outlays used in a particular program from other outlays lumped with them. (3) It frequently was hard to estimate how certain outlays used in two or more programs should be allocated to a particular program. (4) The outlays differed so much and had such differing periods of probable usefulness that the attempt to compute depreciation sometimes seemed hardly worth the effort required.

The National Project asked for cost differentials computed on two bases - actual salaries paid and average salary for the school system. It defined the regular school program FTE pupils and current expenditure as that remaining after subtracting FTE pupils and current expenditures for specified programs from total FTE pupils and current expenditure. Thus, regular school program refers to grades one through twelve.

The method of estimating FTE pupils, allocating current expenditures, and calculating cost differentials prescribed by the Project was followed in so far as possible. The specific steps are:

1. From the total full time equivalent pupils in the school system, the estimated FTE in four special program areas was deducted to arrive at FTE in the regular program grades 1-12. The four special program areas are:

    A) Early Childhood Education (including kindergarten)
    B) Exceptional Education
    C) Compensatory Education
    D) Vocational and Technical Education

2. From the total FTE classroom teachers in the school system, the estimated number in the four special program areas was subtracted.

3. The estimated number of FTE classroom teachers was multiplied by the average teacher salary in the district to estimate the total teacher salaries for these programs. This amount was subtracted from total teacher salary payments in the district to obtain teachers salaries for the regular school program. Also the actual teacher salaries were estimated for the four special program areas.

4. With one exception all other current expenditures were arbitrarily allocated to each of the four special programs and the regular program based on the ratios of FTE teachers in the four special programs and the regular program to the total number of FTE teachers. In one program there were no classroom teachers used in the compensatory education program. In this case, FTE students was substituted as the basis for allocation.

5. The estimated total current expenditures in the four special program areas and in the regular program were divided by the estimated number of FTE pupils in each to estimate the current expenditure per pupil.

6. The estimated current expenditure per pupil in the selected program was divided by the estimated per pupil cost in the regular school program, to derive the estimated cost differential.

Assumption Underlying Use of Estimates

The study assumes that estimates of per pupil current expenditures are about as good as actual accounting records in determining cost differentials. The fact that an expenditure is charged to a program is not proof that the expenditure should have been charged to it. Assuming that they are realistic, actual expenditures may be affected by numerous variables that might hide or diminish cost differentials, or might exaggerate them. Among these variables are (1) differences in purposes and programs offered; (2) differences in the distribution of staff by length of service, preparation, and other characteristics affecting salaries payable; (3) differences in absenteeism, leaves of absence, terminations of service, and other conditions affecting salaries paid; (4) differences in the size of school systems, location, legal structure, and other characteristics causing differences in the prices paid for similar goods and services; and (5) differences in managerial competence affecting what is spent for like purposes.

Estimates, of course, could minimize or magnify cost differentials for the same reasons. Indeed, they could be affected also by possible errors in the estimates. It is for this reason that the number of cases was kept small and stress placed upon site visitation. Staff concentrated on identifying and, if possible, quantifying, factors that could result in cost differentials in spite of the many other variables affecting cost differences.

Possible Errors in Estimates

The possibility of wide margins of error in the estimates of cost differentials is emphasized. They are estimates derived from estimates of data in all cases. If errors in the various estimated data components move in the same direction, the margin of error could be very wide. If some of the errors move in opposite directions, they might cancel each other to some extent.

The least margin of error probably exists in the estimates of per pupil teacher salaries for the selected programs. Yet, the full time pupil equivalents used in computing per pupil expenditures had to be estimated by use of a single ratio, i.e., the estimated average percent of a full school day spent by a pupil enrolled in the program. In many programs different pupils spent varying amounts of time daily. Obviously, such a condition calls for a weighted average. Data were not available for computing such an average. The ratio was estimated by persons familiar with the operation of the program. Any weighting done by them in the process of estimation was very subjective at best. Furthermore, the teachers' salaries allocated to the selected programs also are based upon estimates of time devoted to the program by various teachers. It is believed that the estimates for teachers assigned daily to the program probably are better than the estimates for other personnel who are assigned occasionally to a program, who are assigned to many other programs daily or weekly, or who are working in offices doing other work for the school system.

The estimates probably are subject to the widest margins of error in the cases of total compensatory education programs and of the regular school program, especially in the larger school systems. Here the attempt to estimate a single ratio that might be used to estimate full time pupil equivalents of classroom teachers can be a compounding of all errors made in the estimates for various program areas. The allocation of teachers and salaries is much harder to estimate for all programs than it is for any one. The chances for error are multiplied. Staff does not know whether or not those who supplied local estimates always adhered to program areas as defined by the Project or to directions contained in the forms. The persons providing the estimates often expressed reservations concerning them.

Limitations of Estimates

Assuming that respondents followed directions and the estimates or data were supplied according to the definitions and directions given, there are certain limitations inherent in the method of allocating other current expenditures to different program areas and to the regular school program. These are noteworthy:

1. In some cases the use of full time teacher equivalents as a basis for allocation of the current expense could be unrealistic. For example, if the total compensatory education program (exclusive of the selected program) does not have a teacher input, the allocation would not reflect any of the costs for supporting services and other current expenses.

2. In other instances, using full time teacher equivalent to allocate other expenses in certain of the programs could inflate the total current expenditure. For example, if there is no input beyond the regular school program except for the employment of additional teachers.

3. Virtually all of the selected programs (and most of the total compensatory programs) were specially funded. In some cases it was difficult to isolate local district and state expenditures from special program expenditures. It is possible that expenditures for specially funded programs may not always be excluded in the net current expenditures for the regular school program.

In addition to the limitations imposed by possible errors in the estimates of teachers' salaries per pupil and in allocating other current expenditures there are other limitations inherent in the method of estimation of cost differentials itself, specifically:

1. It is not appropriate for pre school, after school, or summer school programs where there is no regular day school type program for purposes of comparison. In such cases the entire cost of such programs would be an additional cost.

2. In the case of a compensatory education program largely concentrated in the elementary grades the method tends to understate the true cost differentials.

3. In the case of a compensatory education program largely concentrated in the secondary grades, the method tends to overestimate the true cost differential.

Basis for Estimates of Cost Differentials

Appended tables summarize the estimated data from which the estimates of cost differentials were derived. Tables C6 through C9 deal with the selected compensatory education programs and Table C24 with other compensatory education programs in the selected school systems. Tables C11-C14, C17 and C19 refer to the regular school programs in the selected school systems. Tables C10, C15, C16, C18 and C20-C23 contain certain estimated data requested by the National Educational Finance Project such as:

1. The estimates of actual salaries paid for special program areas and for the regular school program;
2. The allocations of estimated current expenditures other than teachers' salaries to the special program areas and to the regular school program according to estimated full time teacher equivalents;
3. Certain current expenditure data for the school system as a whole; and
4. Certain estimates derived from the three foregoing.

The estimated per pupil current expenditures for the thirty-one selected programs are summarized in Table C9. The lowest expenditure per full time equivalent pupil is $107 and the highest is $6,582 with a median of about $1,300 with the following distribution:

Estimated Current Expenditure Per FTE Pupil	Number of Selected Compensatory Education Programs Having 1968-1969
$ -500	2
500 - 999	10
1000 - 1499	6
1500 - 1999	6
2000 - 2499	1
2500 - 2999	2
3000 - 3499	2
3500 - 3999	-
4000+	2
Total	31

The estimated per pupil current expenditures for the regular school programs are not comparable to the foregoing due to the fact that all current expense other than teachers' salaries were allocated according to the estimated number of teachers assigned to various programs. Nevertheless, it is possible that neither the range nor the variability for the regular school programs is as great as the estimates below and in Table C20 suggest:

Estimated Regular School Program Current Expense Per FTE Pupil	Number of Selected School Systems Having 1968-1969
$ -500	2
500 - 599	6
600 - 699	5
700 - 799	3
800 - 899	4
900 - 999	1
1000 - 1099	2
1100 - 1199	1
Total	24

The range is from $411 to $1,138 with some clustering around the $600 level.

The actual current expenditures per FTE pupil for the selected school systems before the estimated expenses for the special program areas were deducted to get the estimates for the regular school program are as follows:

Current Expenditure Per FTE Pupil for System	Number of Selected School Systems Having 1968-1969
$ -500	1
500 - 599	6
600 - 699	6
700 - 799	5
800 - 899	3
900 - 999	2
1000 - 1099	-
1100 - 1199	-
1200 - 1299	3
Total	26

The range is from $414 per pupil to $1,245 per pupil. The middle case falls between $683 and $734. There is a strong clustering in the middle of the distribution.

The median current expenditure for the twenty-six school systems can be compared with the estimated mean for all public elementary and secondary schools in the United States from Digest of Educational Statistics for 1968-1969. If the national estimates are accurate, the current expenditures for middle cases at least in the selected group of school systems are reasonably close to the $670 per pupil estimate based upon enrollment.

The approximate medians for the basic group of states also can be compared with the estimated means for the states as a whole:

State	Current Expenditure Per Pupil 1968-1969 Approximate Medians for Selected School Systems*	Mean Estimated by U.S.O.E.**
California	$ 740	$ 720
Florida	650	645
Michigan	800	660
New York	975	1110
Texas	525	500

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*Medians are approximate due to small number of cases

**Based upon enrollment

Again, it would appear that the middle cases studied within the selected states are not too different from the state averages. The largest differences are in New York State and Michigan. In New York State suburban counties were included in the study.

Cost Differentials Based Upon Pupil-Teacher Ratio

The cost differential estimates probably subject to the least possible error in estimation and least affected by extraneous variables are those derived from pupil-teacher ratios with teachers' salaries held constant (at the average for the school system). These are shown in rank order in Table C2 for twenty-nine of the selected programs. (The program in Indianapolis involved no additional teachers; no data were obtained from New York City).

The differentials between the per pupil teacher salary cost for the selected programs as compared with those for the regular programs (grades 1-12) ranged from .65 to 5.00. The highest was nearly eight times the lowest. The middle case had a differential of 1.42. The middle half of the estimates fell between .98 and 2.99. The distribution is such that the middle case is not very descriptive of at least

TABLE C-2

ESTIMATED COST DIFFERENTIALS FOR TWENTY-NINE SELECTED COMPENSATORY EDUCATION PROGRAMS, 1968-1969[1]

	School System and Selected Program[2]	Cost Differential[3]
1.	Buffalo: Plus Reading and Math	5.00
2.	Austin	4.96
3.	Detroit	4.91
4.	Ypsilanti	4.52
5.	Milwaukee: Elementary Reading Center	3.71
6.	Milwaukee: Language Development Center	3.55
7.	Hartford: IRIT	2.99
8.	Big Rapids	2.96
9.	Columbia County	2.54
10.	Grand Rapids	2.48
11.	Rochester	2.10
12.	Buffalo: Expanded Language Arts	1.95
13.	Galena Park	1.44
14.	Waco	1.44
15.	Redondo Beach	1.41
16.	Buffalo: Early Push	1.40
17.	Pomona	1.25
18.	Buffalo: Plus After School	1.24
19.	Oakland	1.20
20.	Cobleskill	1.15
21.	Holmes County	1.03
22.	Overton County	.98
23.	Duval County	.91
24.	Syracuse	.88
25.	Hartford: Project Concern	.85
26.	Brenham	.84
27.	Paramount	.81
28.	Los Angeles	.78
29.	Dade County	.65

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[1] Based upon pupil-teacher ratio with teachers' salaries held constant at the average for the school system.

[2] Indianapolis had no additional teachers in its selected program; insufficient data for New York City.

[3] Compared with the regular school program grades 1-12 computed on the same basis as for the selected programs.

three fourths of the estimated cost differentials.

Whether or not cost differentials estimated by this method really reflect the actual differentials for the group studied cannot be determined with any finality with the data available, although it is possible to observe how other estimated salaries and payments for other current purposes might affect them. In the case of Indianapolis 86 percent of the estimated current expense is due to other staff and 14 percent to other categories (including fringe benefits for staff). As may be seen in Table C3, there are twenty-two other selected programs in which over half the current expense is estimated to be for other staff and/or for other purposes. In three of these over half the current expense is due to other staff salaries and in one to other outlays. In another eighteen it is the combined effect of the two that is important. In only seven instances do teachers' salaries alone account for at least half the current expense. In brief, in over three fourths of the selected programs teacher salary costs per pupil may not be very predictive of true cost differentials for the selected programs.

If data could have been obtained on all staff salaries chargeable to various program areas and to the regular

TABLE C-3

ESTIMATED PERCENTAGES OF CURRENT EXPENSE FOR TEACHERS' SALARIES, OTHER STAFF SALARIES, AND OTHER PURPOSES - 30 SELECTED PROGRAMS 1968-1969[1]

School System[2]	Estimated Percent of Current Expense Teachers' Salaries	 Other Staff Salaries	 Other Purposes
Los Angeles, Cal.	55	1	44
Oakland, Cal.	44	29	27
Paramount, Cal.	39	33	28
Pomona, Cal.	50	25	25
Redondo Beach, Cal.	30	62	8
Columbia County, Fla.	35	41	24
Dade County, Fla.	31	48	21
Duval County, Fla.	38	30	32
Holmes County, Fla.	60	12	28
Big Rapids, Mich.	42	33	25
Detroit, Mich.	44	43	13
Grand Rapids, Mich.	49	11	40
Ypsilanti, Mich.	24	56	20
Buffalo, N. Y.:			
Pre school	43	34	23
After school	38	40	22
Language Arts	44	16	40
Reading and Math	64	14	22
Cobleskill, N. Y.	41	27	32
Rochester, N. Y.	35	33	32
Syracuse, N. Y.	43	24	33
Austin, Texas	48	39	13
Brenham, Texas	33	56	11
Galena Park, Texas	60	26	14
Waco, Texas	34	18	48
Hartford, Conn.:			
Project Concern	22	20	58
Intensive Reading	42	48	10
Indianapolis, Ind.	-0-	86	14
Overton County, Tenn.	35	40	25
Milwaukee, Wis.:			
Elementary Reading	80	12	8
Speech and Language	70	9	21

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[1] Derived from Table C-9.

[2] New York City - Insufficient Data.

school program, it is probable that cost differentials for the selected programs estimated from them might be very predictive. In twenty-one selected programs such salaries represent 70 percent or more of current expense; in twenty-seven, 60 percent or more; and in all but one, over half.

Regardless of their limitations, certain observations on the cost differentials based upon pupil-teacher ratios for the selected programs are very relevant to the purpose of the study:

1. The differentials for the pre school programs are not particularly meaningful, since these programs represent an additional cost anyhow. Yet, the range in differentials does indicate that the additional cost for such programs might not be the same for all school systems in a state. The range is from .65 in Dade County to 4.52 in Ypsilanti. The others are 2.96, 2.00, 1.40, 1.20, .91, and .78.
2. The entire cost of the summer school program in Waco is an additional cost regardless of the differential of 1.44.
3. The entire cost for the after school programs in Buffalo and New York City are additional regardless of the cost differentials
4. Elimination of the foregoing cases might not reduce substantially the variability in the estimated cost differentials for the selected compensatory education programs.

The estimated cost differentials for the sixteen selected elementary compensatory education school programs are given below. Since four of the pre school programs also serve elementary school children they are included too making a total of twenty:

Estimated Cost Differential	Number of Selected Elementary School Programs Having
.50 - .99	7
1.00 - 1.49	4
1.50 - 1.99	
2.00 - 2.49	1
2.50 - 2.99	3
3.00 - 3.49	
3.50 - 3.99	2
4.00 - 4.49	
4.50 - 4.99	2
5.00+	1
Total	20

The estimated cost differentials for the three secondary school programs range from 2.48 in Grand Rapids to 1.15 in Cobleskill, New York, with Buffalo in between at 1.96. If the three elementary school programs also serving high school pupils are included, the range is not changed by much (Overton County, Tennessee, .98; Holmes County, Florida, 1.03; and Columbia County, Florida, 2.54).

The classification of estimated cost differentials for the twenty-nine selected programs by states is given below:

State	Number of Programs	Estimated Cost Differentials for Selected Programs		
		Lowest	Intervening	Highest
California	5	.78	.81; 1.20; 1.25	1.41
Florida	4	.65	.91; 1.03	2.54
Michigan	4	2.48	2.96; 4.52	4.91
New York	7	.88	1.15; 1.24; 1.40; 1.96; 2.10	5.00
Texas	4	.84	1.44; 1.44	4.96
Test Group	5	.85	.98; 2.99; 3.55	3.71
Total	29	.65		5.00

The selected programs in California show the least spread in estimated cost differentials. The Michigan differentials reveal the second narrowist spread, but they are in a very different dimension from those in California. New York State shows the widest range. Texas resembles New York both in the range and central tendency. Florida and the test group have about the same kind of spread, but the central tendencies are very different. They fall between California and New York State.

Table C4 based upon pupil teacher ratio and average teacher salary for the school system is comparable with Table

4

TABLE C-4

COST DIFFERENTIALS BETWEEN SELECTED PROGRAMS AND OTHER COMPENSATORY EDUCATION PROGRAMS IN SELECTED SYSTEMS, 1968-1969

	School System/Program[1]	Cost Differential[2]
1.	Oakland	7.06
2.	Waco	6.75
3.	Ypsilanti	6.47
4.	Detroit	5.58
5.	Austin	4.46
6.	Los Angeles	2.39
7.	Rochester	1.99
8.	Buffalo: Plus Reading and Math	1.81
9.	Holmes County	1.80
10.	Redondo Beach	1.50
11.	Hartford: IRIT	.98
12.	Grand Rapids	.88
13.	Galena Park	.60
14.	Buffalo: Expanded Language Arts	.50
15.	Dade County	.43
16.	Duval County	.41
17.	Syracuse	.37
18.	Buffalo: Early Push	.36
19.	Buffalo: Plus After School	.32
20.	Hartford: Project Concern	.15

---

[1] Missing Programs:

Missing Programs:	Reason
A) Paramount; Big Rapids; Brenham; Overton County	No other compensatory education program
B) Pomona; Columbia County; Cobleskill	No teachers in other compensatory education programs
C) New York City; Milwaukee (2 programs)	Missing Data
D) Indianapolis	No teachers in selected program

[2] Computed as in Table C2 - selected program cost divided by cost for other compensatory education programs.

C2. According to Table C4, half the selected programs cost more per pupil than the other programs of compensatory education in school systems with two or more programs and in half the reverse is true. The range is very wide from a differential of .15 to one of 7.06, with the middle case below 1.50. There is very little clustering around the middle value.

Table C5 also is comparable with Table C2. It shows the estimated cost differentials for the other compensatory programs in the selected school systems having two or more programs in relationship to the regular school programs. Other compensatory education programs appear to have a wider range in estimated cost differentials than the selected programs. The middle differential is much lower than it was for the selected programs. There is no strong central tendency or grouping around the middle value.

Cost Differentials Estimated on Other Bases

Tables C3 and C9 suggest that estimates of current expense based upon allocations of current expense exclusive of teachers' salaries according to number of teachers or number of pupils might distort the true cost differentials. The limitations of this procedure were recognized earlier in this Chapter.

TABLE C-5

COST DIFFERENTIALS FOR OTHER COMPENSATORY EDUCATION PROGRAMS IN SELECTED SCHOOL SYSTEMS, 1968-1969

	School System[1]	Cost Differential[2]
1.	Hartford	5.88
2.	Buffalo	3.88
3.	Grand Rapids	2.78
4.	Galena Park	2.41
5.	Syracuse	2.39
6.	Duval County	2.12
7.	Dade County	1.58
8.	Austin	1.13
9.	Rochester	1.05
10.	Detroit	.94
11.	Redondo Beach	.94
12.	Ypsilanti	.70
13.	Holmes County	.57
14.	Los Angeles	.33
15.	Waco	.25
16.	Oakland	.17
17.	Indianapolis	.14

---

[1] The selected program and total program are the same:

Paramount
Big Rapids
Brenham
Overton County

No teachers in other compensatory education programs:

Pomona
Columbia County
Cobleskill

Data not available:

New York City
Milwaukee

[2] As compared with the regular school program as in Table C2.

Appendix Table C23 shows the cost differentials for selected programs based both upon estimated actual teachers' salaries and estimated average teacher's salary for the school system with other current expenses allocated according to estimated full time teacher equivalents. These differentials have a wide range, much wider than for those based upon pupil teacher ratio alone. The high is over twelve times the lowest. The middle value is not typical of many programs in the group. These observations are based upon the use of the average salary for the systems in computing the differentials, but use of the actual salaries does not change the results much.

The limitations of estimating cost differentials from regular school costs in grades 1-12, especially those in elementary schools, have been mentioned. Although the definitions of compensatory education used are not the same as those used here, Special Study No. 1 directed by Professor McLure contains estimates of compensatory education cost differentials based upon regular school program costs in grades 1-6. Although his procedure produces different magnitudes in cost differentials, wide variability characterizes the distribution as in this study.

Conclusions

The overlapping of compensatory education with other school programs and the nature of data obtainable on expenditures did not make it possible to compute firm cost differentials for the selected programs studied. The estimates of expenditure data used to estimate cost differentials could be subject to wide margins of error. The method of estimating the differentials also is subject to serious limitations. It is possible that in grades 1-12 at least, compensatory education is not a discrete program for which cost differentials can be estimated with any high degree of accuracy.

It is very likely too that the cost differential approach may not be appropriate for pre school compensatory education programs and for those provided after school hours or during the summer vacation. At least, in the selected programs of these types observed, all costs were additional regardless of the differentials.

The estimates of cost differentials for compensatory education based upon pupil-teacher ratios with teachers' salaries held constant at the average for each selected school system probably are subject to the least margin of error. Yet, in three fourths of the selected programs, it would appear that teachers' salaries alone might not be predictive of the true cost differentials. If this is so, then the allocation of current expense exclusive of teachers' salaries according to the number of teachers might produce even wider margins of error.

Indeed the cost differentials no matter how estimated for the selected programs as a whole tended to confirm a pattern of variability consistent with the differences in purposes and inputs observed in the program descriptions. Classification of data by program type or state did not change this characteristic.

These findings offer little support for the assumption that cost differentials for compensatory education will not vary significantly among school systems. It is possible that each state might have different patterns of cost differentials for compensatory education. It is possible that no state has any one differential for such programs that would be applicable to most school systems.

The estimates of cost differentials possess too many limitations to provide a solid basis for estimating or projecting costs of compensatory education for the states or the nation. Even if this were not so, there are too many uncertainties about the representativeness of the sample to attempt such estimates.

The fact that all programs described had an input of additional staffing beyond what is provided in the regular school program is indicative of an additional cost. If this finding holds true generally and if it is ignored in federal and state plans for distributing funds to school systems and local plans for allocating funds to schools, either compensatory education or other educational programs will suffer. Furthermore, failure to take this fact into account in federal and state laws could result in over estimation of the fiscal capacity of states and school systems having above average compensatory education needs.

The attempt to estimate cost differentials for compensatory education may not be necessary to deal with the problem. Purpose and program overlaps create very difficult problems of accounting for pupils, staff, and other program inputs. It would appear that other program areas identified in the Project might have encountered similar problems. Hence, it might be well in some states at least to lump all of these special needs into a single correction. This approach is worthy of consideration.

Furthermore, as long as such programs have multiple purposes which overlap other school purposes or as long as the programs themselves overlap regardless of purpose, it is questionable if program accounting is worth attempting.

If compensatory education is to be treated separately in finance, determination of the additional funds to be allocated for it probably will have to be done upon some arbitrary cost basis appropriate for a particular state. If what holds true in this study is true generally, there may be too much variability in actual practice to provide guidance for such a decision. Another possibility is to continue to finance compensatory education by special provisions as in Title I until such time as the definitions, purposes, and programs of compensatory education become more stabilized than they are now. Much more needs to be known about cost-effectiveness to attain such a condition.

APPENDIX C-I

DATA GATHERING FORMS

NATIONAL EDUCATIONAL FINANCE PROJECT

Satellite Study

on

COMPENSATORY EDUCATION

FORM I

DISTRIBUTION OF PUPILS, STAFF, AND CURRENT OPERATING EXPENDITURES BY PROGRAMS IN REGULAR SCHOOL YEAR

School Year 1968-69

School District ______________________________

Superintendent ______________________________

Contact Person for Data ______________________________

Address ______________________________

____

____

Return to:

Arvid J. Burke, Study Director
National Educational Finance Project
Satellite Study on Compensatory Education
State University of New York at Albany
Draper Hall - 345
135 Western Avenue
Albany, New York 12203

Instructions

Section I

Item 1	Days attendance of pupils, e.g., 180, 185, 190 (1968-1969)
Item 2-4	Time pupils report until their dismissal (1968-1969)
Item 5	a. Use the gross total official Average Daily Membership (ADM) prepared by the school district. (for the 1968-69 school year) b. If the school district does not compute ADM, select a typical school day in the 1968-1969 school year for which total enrollment figures are available. Indicate the day chosen.
Item 6	One FTE pupil equals a full day (course load) devoted to each respective program, e.g., Double sessions of kindergarten equal 0.5 FTE pupil in each.
Item 7	For consistency, use the official ADM as calculated by the district, if available, or, enrollment as of the same date used in 5b.

Section II

Item 9-10	For purposes of computing FTE's the full work load includes time spent in class and other assigned activities. "Certificated" refers to persons with regular and emergency certificates for educational employment for a continuing assignment.
Item 12	A person teaching part time and performing other duties as part of his position would be prorated according to his work load in each area of responsibility.

Section III

Item 14-18	Estimate part time employees in terms of full time work loads in the respective areas.

Section IV

Item 20	Total salaries actually paid to FTE classroom teachers during the regular school year.
Item 21	Total salaries paid to FTE classroom teachers in each of the special programs. Allocate total salaries based on the percent of time spent in the program.
Item 22	Total salaries paid to FTE non-teaching academic staff. Allocate total salaries based on the percent of time spent in the respective areas.

Section V

Item 26	Total current expense is defined as total expense less expenditures for capital outlay and debt service.

Section I

Pupil Enrollment (Average Daily Membership - ADM) in Day School Programs

1. Number of days in regular school year: (Exclude summer school) ________

2. Length of average full-day program in hours and minutes ________ Hours ________ Minutes

3. Length of School Week in days and hours ________ Days ________ Hours

4. Length of School Year in weeks and days ________ Weeks ________ Days

5. a. Average Daily Membership (ADM) calculated by the school district ________

   b. Date ________ Month ________ Day ________ Year

   Total enrollment as of the above date ________

6. Total number full time equivalent (FTE = full day) pupils in ADM ________

7. Special Programs

	A Total Pupils	B Decimal Portion of School Day Spent in Program	C Total FTE Pupils in ADM - AxB
(1) Pre-kindergarten			
(2) Kindergarten			
(3) Compensatory Education			
(4) Vocational & Technical Education			
(5) Exceptional Children			
(6) Totals	A	XXXXXXXXXXXXXX	C

8. Total Net Enrollment of Pupils in Basic Day School Programs ________

   (1) Total Net enrollment (Item 5 minus Item 7(6)A) ________

   (2) Total number FTE pupils in ADM (Item 6 minus Item 7(6)C) ________

Section II

Academic Staff (Certificated) Employed and on the Job

9. Total number of classroom teachers (FTE in all day school programs serving pupils in gross ADM (Item 5, Section I) ________

10. Total number of classroom teachers (FTE) in special programs serving pupils in Item 7 of Section I
    - (1) Pre-kindergarten teachers in 7(1) ________
    - (2) Kindergarten teachers in 7(2) ________
    - (3) Compensatory Education teachers in 7(3) ________
    - (4) Vocational and Technical education teachers in 7(4) ________
    - (5) Exceptional Children teachers in 7(5) ________
    - (6) Total number of classroom teachers in FTE (1-5) ________

11. Net total classroom teachers (FTE) in basic day school program (Item 9 minus Item 10(6) ________

12. Total non-teaching academic (certificated) staff in FTE serving pupils in gross ADM (Item 5, Section I) ________
    - (1) Administrative and supervising staff: Sup't., Ass't Sup'ts., Principals, Supervisors ________
    - (2) Counselors ________
    - (3) Psychologists and Social Workers ________
    - (4) Librarians ________
    - (5) Research and Curriculum Workers ________
    - (6) Others ________
    - (7) Total Non-teaching academic staff in FTE (sum of 1-6) ________

13. Grand total academic (certificated) staff in FTE (Item 9 plus Item 12) ________

Section III

Non-Academic Staff (FTE)

14. Number (FTE) Employees for health service: Doctors, Nurses, and Others ________

15. Number (FTE) Clerks, Secretaries, Statisticians, Non-Cert. Teacher Aides, Security Officers and Others ______

16. Number (FTE) Employees for Operation and Maintenance ______

17. Number (FTE) Employees for Food Service ______

18. Number (FTE) Employees for Transportation of Pupils ______

19. Total Number FTE Non-academic staff (sum of Items 14-18 ______

Section IV

Salaries Actually Paid to Staff

20. Total salaries paid to classroom teachers shown in Item 9 of Section II for regular school year $______

21. Total salaries paid to classroom teachers in special programs shown in Item 10 of Section II

    (1) Pre-kindergarten teachers in 10(1) ______

    (2) Kindergarten teachers in 10(2) ______

    (3) Compensatory Education teachers in 10(3) ______

    (4) Vocational and Technical education teachers in 10(4) ______

    (5) Exceptional Children teachers in 10(5) ______

    (6) Total salaries paid to classroom teachers in special programs (sum of 1-5) ______

22. Total salaries paid to non-teaching academic (certificated) staff shown in Item 12 of Section II

    (1) Administrative and Supervisory Staff; Sup't., Ass't. Sup'ts., Principals, Supervisors ______

    (2) Counselors ______

    (3) Psychologists and Social Workers ______

    (4) Librarians ______

    (5) Research and curriculum workers ______

    (6) Others ______

    (7) Total salaries paid to non-teaching academic staff (sum of 1-6) ______

23. Total Salaries paid to non-academic staff shown in Item 12-19 of Section III

    (1) Health Services Employees: Doctors, Nurses, and others ________________

    (2) Clerks, Secretaries, Statisticians, Non-certified Teacher Aides, Security Officers and others ________________

    (3) Operation and Maintenance of School Plant ________________

    (4) Food Service ________________

    (5) Transportation ________________

    (6) Total Salaries paid to non-academic staff (sum of 1-5) ________________

24. Total salary payments to persons on leave of absence and to substitutes for daily absence of staff for persons not counted in Items 9 and 12. ________________

25. Grand total payments for salaries of academic staff persons on leave of absence, and substitutes (sum of Items 20, 22, 24) ________________

Section V

Other Financial Data

26. Total current expense for the school district for the year ended June 30, 1969 ________________

27. The retirement rate used for calculating the district contribution for academic employees ________________

28. The retirement rate used for calculating the district contribution for non-academic employees ________________

29. The rate used in calculating the district share of social security ________________

C77

NATIONAL EDUCATIONAL FINANCE PROJECT

Satellite Study
on
Compensatory Education

Form II

DATA ON COMPENSATORY EDUCATION PROGRAMS

School Year 1968-69

School District ______________________________

Superintendent ______________________________

Contact Person ______________________________

Address ______________________________

____

____

Return to:

Arvid J. Burke, Study Director
Satellite Study on Compensatory Education
State University of New York at Albany
Draper Hall 345-346
135 Western Avenue
Albany, New York 12203

PROGRAM DESCRIPTION

GENERAL FEATURES

Address of School System: ______________________ Today's Date __________

____

____

Full Title of Program: ______________________________________

Short Title (if any): ______________________________________

Age Groups Served: ______________ and/or Grade Levels Served __________

Program Director(s): 1. ______________________ Telephone __________

Address: ______________________

____

2. ______________________ Telephone __________

Address: ______________________

____

Contact Person: ______________________ Telephone __________

Address: ______________________

____

Beginning Date of Program: __________ Program Termination Date (if any) __________

Field Worker completing this form:

Name: ______________________

Address: ______________________

____

Position: ______________________

Telephone: ______________________

PROGRAM DESCRIPTION - GENERAL FEATURES

Missing General Descriptive Data (Checked Below):

Obtain copies of documents describing explicitly any of the following characteristics of the program checked on the left as missing by the central staff.

__________1. **Overview of the program giving a brief description of the treatment.**

__________2. **Details on the type of pupils being served by the program, including the criteria employed to select students for participation in the program and the estimated number of students eligible for participation.**

__________3. **The assumptions and objectives of the program, particularly those that have been clearly established.**

__________4. **The activities, techniques, or methods employed to meet the objectives.**

__________5. **How these activities, techniques, or methods differ from those generally used by the local school system.**

__________6. **Evaluation of the results of the program, including a description of the evaluation procedures used.**

If documents are not available for any of the missing items, provide the requested data in the space below adding additional pages, if necessary:

PROGRAM DESCRIPTION

General

A. Directions

The questions that follow are designed to assist in obtaining information essential for the determination of cost differentials, if any. It is not anticipated that all parts will be completed for any one program. Rather, only those parts that are germane to the program under study need be completed. For purposes of clarification and comparability of data, the following definitions are used.

1. Data Collection Date

   All data on inputs must be for the school year ended June 30, 1969. If the school year does not end on June 30, use the school year ending next closest to June 30, 1969.

2. Average Daily Membership (ADM)

   The total of the number of students enrolled in the program(s) during each school day, regardless of absenteeism, divided by the number of days school was in session.

3. Regular Program

   The instructional program provided by the local school system for the general benefit of all students in the age group and/or grade levels served by the program being studied.

4. Compensatory Education Program

   The instructional program provided by the local school system designed specifically to overcome learning difficulties or handicaps associated with poverty, class or status, national origin, race cultural background, home conditions, or adverse environmental conditions generally as distinguished from organic causes.

B. Program Type

Check type of exemplary compensatory education program below:

_____Type A - Additional Staffing - This type is exemplified by use of specialists, regular classroom teachers, and supporting non-instructional staff personnel beyond what would be used in the regular program.

_____Type B - Different Staffing Qualifications - This type is exemplified by hiring staff with higher qualifications than would be employed in the regular program.

_____Type C - Additional Time - This type is exemplified by a longer school day, school week, or school year than that for the regular program.

_____Type D - Additional Pupils - This type is exemplified by increased numbers of pupils attending school than would attend the regular school program.

_____Type E - Additional Materials - This type of program is exemplified by the use of more or different instructional space, equipment, or supplies than are used in the regular program.

_____Type F - Additional Auxiliary Services - This type of program is exemplified by additional auxiliary services such as special transportation and food service, beyond what is provided in the regular program.

_____Type X - Combination of the following types (list by letters above):

____

PROGRAM DESCRIPTION

Section I

Staffing and Pupils

Directions

1. Complete this part for each compensatory education program under study.
2. Enter after each position title the number of full time equivalent (FTE) staff members in the program and the total salaries actually paid.

	Position Title	Total No. of Staff	% of Time Spent In Program	Number of Staff FTE	Prorated Salaries Actually Paid
1.	Classroom Teachers				
2.	Speech Teachers				
3.	Guidance Counselors				
4.	Social Workers				
5.	Psychologists				
6.	Psychiatrists				
7.	Attendance Teachers				
8.	Medical Doctors				
9.	Nurses				
10.	Technicians				
11.	Secretaries and Stenographers				
12.	Classroom Aides				
13.	Clerks				
14.	Tutors				

Others (List on next page)

	Position Title	Total No. of Staff	% of Time Spent In Program	Number of Staff FTE	Prorated Salaries Actually Paid
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
Total Number in Program					

3. a. Enter the Average Daily Membership for the Program under study as calculated by the school district ________

or

b. Total enrollment as of the same day used in Form I, Section I, Item 5b ________

4. Decimal portion of school day spent in program ________

5. Total number of full time equivalent (FTE = full day) pupils in ADM (4x3) ________

PROGRAM DESCRIPTION

Section II

Other Inputs

A. Additional Time

Directions

1. Complete this part if the program is Type C or a combination involving Type C. Examples of additional time compensatory education programs are:

   a. Extended school days or after school activities
   b. Extended school week or weekend activities
   c. Extended school year or summer or other vacation activities

2. Enter below the following information regarding the compensatory education program:

   a. For programs having a longer school day enter the number of additional hours and minutes per day and the number of days during the school year involved:

   Number of Hours _____+Minutes______Daily

   Number of Days Involved ___________Yearly

   b. For programs having a longer school week enter the number of days or hours added weekly and the number of weeks per school year:

   Number of Days _____and/or Hours ____Weekly

   Number of Weeks _______________Yearly

   c. For programs having a longer school year enter the number of weeks or days added per year:

   Number of Weeks _____and Days _____ Yearly

3. Attach data on school district policy in regard to paying for such extra service.

B. Additional Pupils

Directions

1. Complete this part if the program is a Type D or a combination involving Type D if the data are available.

2. In the space provided on the next page indicate the additional number of pupils enrolled in school (in ADM) as a result of the operation of the compensatory education program. Examples are:

a. Non-public school pupils
b. Non-resident pupils residing outside of the school district
c. Resident pupils who had left school (dropouts)
d. Other resident pupils who otherwise would not have entered school (to be specified below)

Number of Additional Pupils Enrolled in School

Non-public school pupils ____________

Non-resident pupils ____________

Dropouts ____________

Truants ____________

Others (Please specify type)

____________________ ____________

____________________ ____________

____________________ ____________

Total ____________

C. Additional Materials

Directions

Complete this part if the program is Type E. This part is designed to aid in the collection of data that is necessary in identifying Type E differentials resulting from the use of expensive additional or special instructional space, equipment, or supplies.

1. Indicate below any additional space requirements or special modifications to the physical plant.

   Examples of special modifications or additions to the physical plant:

   a. Additional square feet of classroom space per pupil (specify how much)
   b. Built in features (specify)
   c. Other additional built in features (specify)

Type of Special Modification or Addition	Specifications

2. In the space provided below list unusual, complex and expensive special instructional equipment that are purchased and used specifically in the compensatory education program, how many units are used, and a description of it. Ignore inexpensive, common equipment such as projectors, maps, and desks. Examples of highly unusual and expensive equipment items are given below:

	Type of Equipment*	Total Original Purchase Price	Normal Length of Service (Years)	Cost of Supporting Supplies
1.	Closed Circuit Television Systems			
2.	Computers			
3.	Teaching Machines			
4.	Electronic Laboratories			
5.				
6.				

*Include all special equipment even though it may have been purchased in prior years.

	Type of Equipment	Original Purchase Price	Normal Length of Service (Years)	Cost of Supporting Supplies
7.				
8.				
9.				
10.				

D. **Additional Auxiliary Services**

Directions

1. Complete this part if the program is a Type F or a combination involving Type F.

2. If additional transportation is required for the program, enter in the space provided below the following information:

   a. Explain how the transportation is different from that provided for the regular program in the space below:

   b. The average annual cost per pupil of transporting pupils in the district $________________.

   c. The number of additional pupils transported annually as a result of the program ________________.

   d. If the additional transportation is not provided daily, compute an estimate of the annual pupil equivalent added ________________.

3. If additional food service is provided in the program, enter in the space provided below the following information:

   a. Describe how the food service is different from that provided for the regular program in the space below:

   b. What is the average annual cost per pupil to the district of providing food service? $ ______________

   c. Estimate below how much is added to this amount by the program and give the basis for the estimate: Amount $______________

4. If any other auxiliary service is provided that is not provided for pupils in the regular program, attach data similar to that requested under 1 and 2 above.

Salary Schedule Differentials

Directions

1. For each position title actually used in the compensatory education program (Section I) obtain the scheduled minimum and maximum salaries, increments, and other factors affecting compensation for the position in the regular program and in the compensatory education program.

2. If any position entered in Section I is not used in the regular school program obtain the information as it applies to the compensatory education program only.

3. If copies of the foregoing data cannot be obtained enter the data on the back of pages 13 and 14; attach additional sheets if necessary.

4. From the salary schedules or other sources cited on the above pages make the following entries in the form below:

a. If the scheduled minimum (L) or maximum (H) salary for any position (regardless of the person in the position) exceeded the scheduled minimum or maximum salary for a similar position in the regular school program during 1968-1969, give the amount and the reason in the form below.

b. If the reverse is true, please do the same giving the amount of the negative differential with a minus sign.

c. If any person in the position is paid an amount in excess of his scheduled salary in 1968-1969 which was not paid to persons with similar qualifications in the regular school program, give the amount of the excess and the reason for paying it. In such cases write "not scheduled" in spaces for "Base" and "Class". Cite Source of the information with the data on salary schedules.

	Salary Differential				
	Base[1]	Class[2]	Amount[3]	Reason[4]	
1. Classroom Teachers					1.
2. Speech Teachers					2.
3. Guidance Counselors					3.
4. Social Workers					4.
5. Attendance Teachers					5.
6. Psychologist					6.

---

[1] Indicate if applies to minimum, maximum, or both by letters L, H, or B respectively.

[2] Classify on a, b, or c according to the directions for 4 above.

[3] If varies from both minimum or maximum, show amount for each. Put minus sign on class b differential.

[4] Attach extra sheet, if necessary, coded to number of position title.

		Salary Differential			
	Position Title	Base	Class	Amount	Reason
7.	Psychiatrist				
8.	Medical Doctor				
9.	Nurses				
10.	Technicians				
11.	Secretaries or Stenographers				
12.	Classroom Aides				
13.	Clerks				
14.	Tutors				
	Others (List)				
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

APPENDIX C-II

PROGRAM DESCRIPTIONS

LOS ANGELES UNIFIED SCHOOL DISTRICT

Los Angeles, California

TOTAL COMPENSATORY EDUCATION PROGRAM

The 1968-1969 compensatory education project funded under Title I, ESEA, provided a comprehensive program for approximately 42,000 participants. Projects were centered in schools with attendance areas serving large concentrations of children from low income families. At the elementary level projects were grouped into three categories: English Language Arts; Pre kindergarten; and an "Intensive Instruction" experimental program. Projects in the English Language Arts component included Reading; English as a Second Language; Teacher-Librarians; Social, Cultural and Educational Enrichment; Kindergarten; Resource Teachers; Project Follow-Through; and a Program for Inter-school Enrichment.

At the secondary level funds were used to conduct a three-phase compensatory education program. The main focus of the program was on the student achievement center concept. Closely related supportive services were provided in the areas of counseling and cultural enrichment. Projects in the Student Achievement Center component included College Capable; Education and Guidance; Instructional Materials Centers; Teacher-Clerical Assistance; Teacher Assistants; Educational Aid; and Administrator Candidate Training. The counseling service component included Group Counseling; Consulting Counseling; Reading and College Capable Counseling; Career Guidance; Exploratory Work Experience Education; Dropout Prevention and Guidance Center; Extended Day Counseling; and Opening Doors. Projects included in the Cultural Enrichment component included music, art, and multi-cultural exchange.

The projects that were designed for disadvantaged students on a K-12 basis included Standard Oral English; New Literature for English Classes; New Materials for Social Studies Classes; Mexican-American Studies; Afro-American Studies; Parent Seminars in Adolescent Behavior; Community Aides; and Study Skills Center. Compensatory programs not funded under Title I, ESEA and OEO included a core program for educable mentally retarded pupils; reduction of class size in schools with large numbers of educationally disadvantaged students; intensive individual reading instruction; special reading programs; special placement classes for pupils with behavioral problems; and reduction of class size in grades K-6.

The program selected for study was the Reading Program for Mexican-American Children conducted at the Malabar Street School in East Los Angeles. The program was funded by the Los Angeles City School District, and the California State College Foundation.

A READING PROGRAM FOR MEXICAN-AMERICAN CHILDREN[1]

Purpose

The objective of the program is to help Mexican-American children become vocationally competent adults by teaching them to read at least up to grade level in the primary grades.

Target Population

The program was provided at the pre school, kindergarten and grades 1-3 level. Forty pre school children three to five years of age were selected on the following bases:

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[1] Hawkridge, David G., Peggie L. Campeau, Kathryn M. DeWitt, and Penelope K. Trickett, A Study of Further Selected Exemplary Programs for the Education of Disadvantaged Children, American Institutes for Research in the Behavioral Sciences, Palo Alto, California, June, 1969, p. 78.

1. Age - 3-4 years old
2. Sex - balance with respect to the number of boys and girls was sought
3. Language - balance with respect to number of Spanish and English speaking children was sought
4. Willingness of parents to participate in the project
5. Parents' willingness for teachers to make home visits once a week

In addition to the pre school children, fifty kindergarten and 345 children in grades 1-3 participated in the program. These children represented the total enrollment in the respective grades at the Malabar Street School.

Distinguishing Features

The project involves a concerted attempt to improve reading achievement without additional resources so that there would be greater likelihood of the achievement which takes place being attributed to such factors as instructional philosophy and method, community interest, and parent participation, rather than enrichment factors which could not readily be provided in other inner city schools.

Major Inputs

The major inputs were additional teachers - two pre school and one kindergarten.

Evaluation

The Stanford Reading Test and the California Reading (upper primary) Test were used. The table following presents the percentage of pupils in the third stanine and above from May, 1966 to May, 1969.

Test	Grade	Percentage of pupils in third stanine and above			
		May 1966	May 1967	May 1968	May 1969
Stanford Reading, Primary I, Total	1	7.5 N=139	21.2 N=131	41.7 N=120	55.3 N=114
Stanford Reading, Primary II	2	14.5 N=121	12.4 N=125	25.4 N=115	42.3 N=130
Stanford Reading, Primary II, Total	3	27.5 N=112	28.2 N=117	34.3 N=108	56.1 N=123
California Reading, Upper Primary	3	36.3 N=114	48.7 N=117	69.1 N=110	-

Acknowledgements

Dr. Robert Kelly, Superintendent
Dr. Constance Amsden
Mr. Henry Boas
Mr. J. Lyman Goldsmith
Mr. Richard Hammerle
Mrs. Jacqueline Hartwick
Dr. Frank Toggenberger
Dr. Ernest P. Willenberg

OAKLAND UNIFIED SCHOOL DISTRICT
Oakland, California

TOTAL COMPENSATORY EDUCATION PROGRAM

The largest compensatory education programs offered by the district in terms of expenditures are the programs funded under ESEA. In addition to Title I programs, the district offers a variety of programs for disadvantaged children. These include Summer Head Start Programs; New Careers; Follow-Through Programs; Neighborhood Youth Corp Project; Pre school Compensatory Education Programs; Demonstrator Project in Reading and Math; and the Pre school Program which was the focus of this study.

THE PRE SCHOOL PROGRAM[1]

Purpose

The goal of the Oakland Pre school Program is to utilize parents, paraprofessional staff, and professional staff in a joint effort to help pre school students increase their potential for success in school. The objectives of the program were derived from this basic goal and are as follows:

1. Augmentation and development of the conceptual and the cognitive skills of the children
2. Improvement of the language skills of the children
3. Stimulation of the interest and the curiosity of the children
4. Improvement of social-emotional adjustment of the children
5. Detection and remediation of physical defects and other health problems of the children and tuberculin testing of parents

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[1] Hawkridge, op. cit. (1969), p. 24.

6. Detection of learning and developmental problems of the children
7. Fostering of parent understanding of the school and ways in which parents can help their children progress
8. Fostering of understanding by staff of the mutual and complementary roles of professional staff, paraprofessional staff, and parents in helping children to develop readiness for school.

Target Population

The children selected for participation in the program were from poverty areas of the city. The parents of 447 (90%) of these children were welfare recipients, and the parents of 48 (8%) had been identified as potential welfare recipients. Data on the known ethnic background of the pupils indicates that twenty-one had Spanish surnames, fifteen were other white, and 374 were Negro. Students were enrolled throughout the school year as openings became available.

Distinguishing Features

The curriculum of the Pre school Program was designed to help Project children to increase their potential for initial success in school. The children were exposed to an individualized, sequential series of learning experiences during a morning or an afternoon session of pre school for 3 3/4 hours each day, five days per week.

Inherent in the curriculum is the recognition that young children differ in many respects and that they come to the pre school class with certain strengths and weaknesses based upon their out-of-school experiences. The program is planned to capitalize on the child's strengths and his positive experiences and to provide activities and instruction that compensate for a limited experiential background.

Supportive services were an important component of the pre school program. Health services; in-service education; instructional aides, and parent education were emphasized.

Major Inputs

The major input was staff. Thirty-three full time classroom teachers and thirty-three part time classroom aides were assigned to the program. Supporting staff included one school psychologist, two nurses, two health aides, two secretaries, one school community worker, five school community aides, and one and one half program supervisors. The other major expenditures were for the lease of portable classrooms, and for food services for the participating children.

Evaluation

The Caldwell Pre school Inventory was used to measure the achievement of the first objective, namely, the augmentation and development of the conceptual and the cognitive skills of the children. A pre and post test were administered to a random sample of fifty-two four year old children who had eight months of the pre school experience prior to entering kindergarten in the fall of 1969. This group included two subgroups:

Pre school Group A:	20 children post tested near the end of the pre school year
Pre school Group B:	24 children post tested within the first two months of kindergarten

Because so many of the children living in the project area had been involved in some type of pre school program, it was not possible to find the usual kind of control group. Therefore, a comparison group was selected which was composed of the sixty-seven five year old kindergarten children with no pre school experience. The group is not basically a group of children from welfare receiving families and is consequently a more economically advantaged group than the pre school group.

The table below summarizes the results. Statistical significance at the .01 level was found within group variance. There was no statistical significance between the gain of pre school groups A and B and the comparison group.

	Mean Percentile Equivalent				
	Group A		Group B		
Category	Pre test	Post test	Pre test	Post test	Comparison Group
Total Score	45	70	30	48	55
Personal Social Responsiveness	40	75	30	60	70
Associative Vocabulary	55	85	40	55	65
Concept Activation Numerical	45	60	30	50	60
Concept Activation Sensory	55	65	35	45	45

Acknowledgements

Mr. Spencer Benbow, Acting Superintendent
Mrs. Jerry Alcorn
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Mrs. Carolyn Hunter
Mr. Edmond Larsen
Mr. Sherman G. Skaggs
Mrs. Joye Waters

PARAMOUNT UNIFIED SCHOOL DISTRICT

Paramount, California

TOTAL COMPENSATORY EDUCATION PROGRAM

The Lincoln Demonstration School in Paramount represents the total compensatory education program of the district. All of the district Title I, ESEA allocation has been earmarked for the Lincoln School.

LINCOLN DEMONSTRATION SCHOOL

Purpose

The objectives of the program are:

1. To retrain a staff in providing for individual knowledge and skills development through diagnostic and prescriptive techniques.

2. To meet the individual needs of students in the following areas:

    a. To improve performance as measured by standardized achievement tests.

    b. To improve classroom performance in reading beyond usual expectations.

    c. To improve performance as measured by standardized tests of intellectual ability.

    d. To improve children's verbal functioning.

    e. To improve the children's self-image.

Target Population

A total of 721 students were enrolled in the Lincoln School during 1968-1969. Of the fourteen schools in the district with a percentage of Mexican-American students above 16%, the Lincoln School is the highest with about 24%.

Distinguishing Features

There is no single adopted reading program at the Lincoln School. However, within each classroom there is a variety of reading material from which the teachers may choose the appropriate program for an individual student. It is a "people-oriented" system with teachers and parents both sharing in the decision making process. The program places the decisions about learning tasks in the hands of the teachers with appropriate accountability.

Specialized material and equipment were used to improve reading instruction. The teachers were exposed to new ideas through an extensive in-service program.

Major Inputs

Twenty-six teacher assistants were employed to assist the regular classroom teachers with both instructional and non-instructional tasks. Each teacher assistant was currently enrolled in a teacher training program and had completed the sophomore year of college. Each teacher was allowed two assistants per day for approximately three hours per assistant. This permitted coverage for the entire instructional period and also some free time for planning together. One Director, one Child Development Specialist and one School Psychologist (half time) were retained to serve as resource persons for the staff.

Consulting specialists in curriculum, the disadvantaged child, theories of learning, child development, child psychology, and Spanish-American culture were retained as needed.

At the time of the program's inception in 1965, large sums were spent for instructional supplies and equipment, and the leasing of portable classroom facilities. However, during 1968-1969, the expenditures for capital outlay were a small part of the total expenditures.

Evaluation

Evaluation of the first grade students' programs was based on comparison with the first grade students in the previous two school years and on a control group selected from the district.

Evaluation of the second and third grade students' progress was based on comparisons of pre and post test results, second and third grade students in the previous two school years and on a control group selected from the district. Evaluation of fourth, fifth, and sixth grade students was based on pre/post test changes only.

The table below summarizes the means and standard deviations for grades 2-6 of pre and post test scores on the Stanford Reading Achievement Test.

	Pre Scores		Post Scores		
Grade	$\bar{X}$	SD	$\bar{X}$	SD	t*
2	1.62	.38	2.43	.73	9.0
3	2.22	.48	3.06	.81	10.5
4	3.20	.92	4.10	1.32	5.62
5	4.71	1.24	5.62	1.27	5.05
6	4.81	1.32	5.72	1.48	4.33

*Statistically significant beyond the 1% level of confidence.

Acknowledgements

Dr. Palmer G. Campen, Superintendent
Mr. H. Glenn Davis
Mr. Keith G. Vander Zyl

POMONA UNIFIED SCHOOL DISTRICT

Pomona, California

TOTAL COMPENSATORY EDUCATION PROGRAM

The ESEA Title I compensatory education project of the Pomona Unified School District places its major emphasis on reading and related activities in grades 1, 2, and 3, and specially identified students in K, 4, 5, and 6. The project stressed the readiness, developmental, and remedial aspects of reading as designed to offset ethnic, economic, and cultural disadvantages of the children involved. The project components are: Reading Augmentation, Classroom Support, Cultural Enrichment, Community Activation and In-service Education. The project is further complemented by Head Start and Child Development Center pre school classes in the same target sites.

The Classroom Support program comprised two elements - classroom aides and special materials. The aides provided assistance in general classroom management and worked with small groups and individual children who needed extra assistance. The special materials included professional books and references dealing with the problems and needs of disadvantaged children, as well as curriculum materials and equipment.

The Cultural Enrichment Program offered additional field trips and lessons in art and literature. A total of 458 extra bus trips were taken to a variety of places not on the regular district itinerary.

Community activation was served through the work of two Home-school Counselors, and two psychologists. Group and individual meetings were undertaken in the project schools to involve parents with school personnel in an effort to improve home-school communications.

An In-service Education training program was undertaken to acquaint all project involved personnel, particularly classroom teachers in the target area schools, with the special problems of disadvantaged students.

READING AUGMENTATION[1]

Purpose

The objectives of the program are:

1. To give children supplemental help in reading readiness, skill development, and remedial reading within a framework of broadening their total life and academic experiences.
2. To help children see a connection between reading and the acquisition of reading skills and their own overall needs, problems, and aspirations.
3. To help children achieve increased mastery of the skills and techniques required for reading competency.
4. To determine by testing an appraisal of each child's academic progress.

Target Population

The following criteria were used to identify potential participants from K-6 in the project schools:

1. Classroom performance significantly below grade level in reading.
2. Poor performance on standardized tests.
3. Poor performance on standardized tests of intellectual ability.
4. Low level in verbal functioning.
5. Negative self-image.

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[1] Hawkridge, op. cit. (1969), p. 121.

6. Reading difficulties based on language patterns differing from the dominate cultural group.
7. Expectations of school failure.
8. Low attention spans.
9. Reading difficulties related to factors common to the culture of poverty (low income influences).

A child evidencing a minimum of four of the listed disabilities was considered qualified for the services. During 1968-1969 a total of 1970 pupils participated in the program.

Distinguishing Features

Pupils with the most severe reading difficulties were taken from their classroom and given special individual and small group remedial instruction. The children who were not withdrawn from the classroom received curricular reading augmentation through the increased effectiveness of the classroom teachers based on the advice, counsel and demonstration of a "helping teacher." Each participant received about 200 minutes of special instruction each week.

Major Inputs

The staffing of the program consisted of four remedial reading teachers, one English as a second language teacher, one "helping teacher," and clerical and research personnel.

Other inputs such as supplies and equipment were minor in terms of their dollar expenditures during 1968-1969. However, at the inception of the program in 1965-1966, large sums were expended for portable classrooms, furniture, and equipment.

Evaluation

The evaluation of the effectiveness of the Augmented Reading Program was based primarily on pre and post test results of the experimental group and a comparison group in the Metropolitan Readiness Test (Grades K-1) and the Stanford Reading Test (Grades 1-6).

The table below presents the results of the pre and post test scores for the Title I group and for the comparison group on the Stanford Reading Test - Total Reading in grades 1-6.

Title I: Grade	Median Grade Placement Pre Test	Median Grade Placement Post Test	Gain in Months from Pre Test to Post Test
1	1.0	1.6	+.6
2	1.6	2.0	+.4
3	2.0	2.8	+.8
4	2.9	3.7	+.8
5	3.7	4.5	+.8
6	4.0	4.9	+.9
Comparison			
1	1.0	1.5	+.5
2	1.6	2.0	+.4
3	2.0	2.6	+.6
4	2.8	3.4	+.6
5	3.4	4.5	+.1
6	4.1	4.7	+.6

Acknowledgements

Mr. Winston Nelson, Superintendent
Mr. Con Hayes
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Mr. Daniel Zuckerman

REDONDO BEACH CITY SCHOOL DISTRICT

Redondo Beach, California

TOTAL COMPENSATORY EDUCATION PROGRAM

In addition to the Title I, ESEA Reading Program for educationally deprived children, the district is providing remedial reading instruction for approximately 1,414 children in grades 1-3 under the Miller-Unruh Act of California.

READING ENRICHMENT FOR EDUCATIONALLY DEPRIVED CHILDREN

Purpose

The objectives of the program are:

1. To improve classroom performance in reading beyond usual expectations.
2. To improve performance as measured by standardized achievement tests.
3. To improve the children's self-image.
4. To change (in a positive direction) the children's attitude toward school and education.
5. To improve the verbal functioning level of the children.
6. To increase the children's expectation of success in school.

Target Population

The following criteria were used to identify students for participation in the program:

1. The child should be performing at a reading level significantly below that of his ability.
2. The child should be capable of learning.
3. The child should be relatively emotionally stable.

4. The child should be free from serious health problems.

Out of a total of 846 educationally deprived children in the district, 298 were served by this program in grades 1-6.

Distinguishing Features

The major activity of the program was reading. Some of the minor activities were library, psychological services, teacher aides, English as a second language, and in-service training. The reading approach used was one of individualized prescribed instruction based on the needs of each child. No one teaching method was used.

A multi-media approach was used. Machine aids such as the Language Master, Controlled Reader, Tachist-O-Flasher, films, slides, tape recordings and transparencies were used.

The basic organization for those admitted to the program was small group instruction, usually not more than six in a group or individual instruction as needed. The project teacher, classroom teacher, psychologist and principal worked together as a team to work out the program necessary to meet the needs of each child.

Each child spent approximately 45 minutes per day, five days a week, working individually or in small groups with the project teacher. In addition to this, each child received reading instruction by the classroom teacher five days per week.

Major Inputs

The major input was personnel. Three classroom teachers and three teacher librarians were assigned to the program full time. One psychologist worked approximately 3/4 time, and three teacher aides were employed part time. Consultants and conferences for staff were other inputs.

Evaluation

A multi-group experimental design, using a pre test and a post test with both the project group and an available non-project group was employed.

The result as measured by the Gilmore Oral Reading Test was: the combined comprehension and accuracy scores for students in grades one through six showed the mean of the average monthly growth grade to be 3.4 (3.4 months growth per month).

Acknowledgements

Dr. E. Ross Harrington, Superintendent
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Mr. Nick G. Parras

COLUMBIA COUNTY BOARD OF PUBLIC INSTRUCTION

Lake City, Florida

TOTAL COMPENSATORY EDUCATION PROGRAM

The Reading Program in Columbia County is the major portion of its Title I activities. There are supporting diagnostic, speech, psychological, health, and transportation services. There also is enrichment in art and music.

READING AND SPECIAL SERVICES CENTER PROGRAM

Purpose

The purposes of the program are to improve classroom performance in reading, physical health of children, and school attendance.

Target Population

A total of 638 low income pupils were served by the program during 1968-1969. Over 60 percent were Negro and nearly 40 percent, white. In the primary grades they are at least one year retarded in reading; in the upper grades at least two years below.

Distinguishing Features

The Reading and Special Services Center is designed to provide the following: (1) diagnosis and treatment of severe reading disabilities on a one-to-one basis; (2) health services; (3) psychological services; (4) resource center in reading; (5) in-service training for reading teachers; and (6) consultant services to schools.

Those attending clinic receive instruction three days a week for one hour.

Ten corrective reading rooms were provided for diagnosis and remediation of reading deficiencies of pupils whose reading problems are not so severe as to warrant individual instruction and for those students released from the clinic who need small group instruction. All instruction is given to students who have weaknesses in certain reading skills and who, with specific instruction in these areas, can become able readers. Instruction in the reading rooms is in groups of approximately six in the elementary schools and twelve to fifteen at the secondary level for one hour daily. The reading teacher in each school also serves as a resource person, assisting classroom teachers with diagnostic procedures, methods of teaching reading to the disadvantaged, and selection of materials. Every effort is made to coordinate the reading instruction in the classroom with that in the reading rooms and clinic.

Major Inputs

Staff members include one project coordinator, one reading clinician director, four clinic reading teachers, ten reading teachers in the schools, one consulting clinical psychologist, one health coordinator, one half time school nurse, four secretarial or clerical positions, one finance assistant, one part time bus driver, and one half of the time of the director of the materials center.

Special equipment and materials also are provided. In two schools for 1968-1969 minor remodeling was necessary to provide space. Personnel in the Reading and Special Services Center are housed in a remodeled school building. Provision is made to transport children to the clinic.

In-service training was provided staff members through the following activities: a two-week orientation program during pre school planning; bi-monthly meetings during school term for all reading teachers; and an extension course was provided from the University of Florida.

Evaluation

The Stanford Reading Test (Primary II, Y) was given in September to 98 pupils in grade three and repeated (Form X) in May for 91 of them. The Stanford Reading Test Intermediate (Form LY and X) was given in grades four through six in the same manner. Other tests were given in the high school grades. The results for grades three and six are:

	Grade 3		Grade 6	
	Pre Test	Post Test	Pre Test	Post Test
Stanine 1	25	17	6	3
Stanine 2	54	19	24	14
Stanine 3	14	31	8	10
Stanine 4	2	21	3	11
Stanine 5	1	1	2	1
Stanine 6	0	1	2	1
Stanine 7	1	0	0	0
Stanine 8	0	0	0	0
Stanine 9	1	1	0	0

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Mr. Silas Pittman, Superintendent
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Mr. John H. Wheeler

DADE COUNTY PUBLIC SCHOOLS

Miami, Florida

TOTAL COMPENSATORY EDUCATION PROGRAM

Dade County has a rather extensive number of compensatory education programs. The largest program ($3,300,613) is Title I, Public Law 89-10, ESEA, which has five major components: 1) Secondary-Curriculum Guidance Project for grades 6-10; 2) Project Language Art Development, ages six and seven; 3) Mobile Reading Center for grades 3-6; 4) Vocational exploration project for secondary students; 5) Language Development Project for eight elementary non-public schools whose students would normally attend a Dade County target school.

Dade County also has an extensive Headstart Project for five year olds, and a model Follow Through Project for grades one, two and three. In addition to those already mentioned, operating programs include a Title I Migrant Education Project (including a pre-kindergarten program), a Talent Development (Drop-Out Prevention) Project, Title III, ESEA, and a Career Opportunity, Neighborhood Youth, and B-2 Project operating under EPDA grants for training para-professional personnel.

For the past several years, Dade County has been involved in a number of Title III Projects and has just recently submitted two new proposals for funding under this title.

The list above is not inclusive of all compensatory projects in Dade County, but does account for the major funding sources.

NEIGHBORHOOD EDUCATIONAL CULTURAL CENTERETTE

Purpose

The Neighborhood Educational Cultural Centerette Project, 757 Northwest 66 Street, Miami, Florida, was conceived of and developed by administrators and teachers from the North Central District, Dade County Public School Board, and citizens residing in the community. The philosophy and objectives were based on the needs of the community and the 1965 Community Action Program Survey.

The federally funded laboratory school is located in a densely populated Negro area of Miami, Florida. The geographic area has been labelled a "poverty pocket" by the Dade County Community Action Program (formed under the Economic Opportunity Act) due to inadequate housing facilities, family disintegration, low educational and aspirational levels of parents, high percentage of health deficiencies, lack of consistent employment, high percentage of public welfare recipients, and intellectual apathy.

The objectives of the research project were to:

1. investigate, experiment with, create, and evaluate methods of instruction, curriculum, and materials; analyze pupil learning styles and teacher-teaching styles; and to provide staff growth and development through continuous in-service programs;
2. help students achieve their academic potential by providing a selected staff and ultra-modern facilities to eliminate medical, dental, nutritional, psychological, and learning problems;
3. provide the community with a trained staff and "home-like" facility which will meet their needs seven days a week, from 7:30 a.m. until 10:00 p.m.:
4. provide an early childhood laboratory for the Dade County Public School Board to develop new methods of instruction,

to design appropriate curriculums of learning for economically disadvantaged students, to create new grouping procedures, and to better understand child growth and development of children ages four through eight. The centerette was to also serve as a dissemination center.

Target Population

The program served 300 children ages four through eight during 1968-1969 in a low income Negro neighborhood.

Distinguishing Features

School facilities resembled a typical American home with four pods each with a living room, dining room, kitchen, and bathroom.

There were 75 pupils of varying ages assigned to each pod. Provision was made for expert diagnosis, team teaching, and individualized learning, and family involvement. Schedules and treatment varied according to individual differences. Many worked independently. Teacher preparation was an integral part of the program.

Multi media materials (audio tapes, audio-video tapes, single concept films, slides, and transparencies) were used in teacher preparation as well as actual work with pupils.

The curriculum was divided into three categories: communications, critical analysis, and social interdependence. Each teacher used a multidisciplinary approach. Assignments were varied for pupils based upon reading level, attitudes, motivation, family conditions, and other differences.

Major Inputs

A project director, an assistant principal, an in-service education director, a community school director, a child development specialist, a psychologist, and a guidance counselor served the whole center as did a part time doctor, dentist, and a dental assistant. Each pod had three certified teachers, an aide, and an intern. There were four secretaries.

Among the other major outlays were those for visual materials used in teacher preparation, health and instructional equipment and supplies and transportation for field trips.

Evaluation

For the annual report to the U. S. Office of Education, it was essential to describe clearly the activities at the Centerette. More particularly it was important to determine to what extent the school was providing services that were appropriate to its objectives. With these considerations in mind the Project Manager provided the Evaluation Unit with a list of their objectives and activities. "This is what we believe we are doing," the Project Manager said. "Now you go ahead and see if we are really doing these things." The Evaluation Unit then wrote questionnaires based on the objectives and activities and proceeded to interview staff members and observe activities. Five questionnaires were written, each covering a different phase of the Centerette's program.

As one part of the evaluation, the Stanford Achievement Test Primary II, Form W was given to the seven year olds in the center. The table following shows how the results compared to those in six other schools.

Acknowledgements

Dr. E. L. Whigham, Superintendent
Mr. Leonard Britton
Mr. Tee S. Greer
Dr. Bert Kleiman

NEIGHBORHOOD EDUCATIONAL CULTURAL CENTERETTE

Stanford Achievement Test Primary II, Form W

Results

School	Meaning	N	Paragraph Meaning	N	Spelling	N	Language	N	Arithmetic	N	Arithmetic Concepts	N
NECC	14	78	21	79	7	64	35	79	17	74	16	77
A	12*	195	16*	195	9***	160	27*	198	13*	194	13*	199
B	12**	144	13*	148	5**	110	28**	145	10*	128	9*	144
D	11*	136	12*	134	8	121	26*	135	13*	131	11*	138
E	9*	123	12*	124	6	98	26*	130	9*	120	8*	131
F	8*	105	12*	103	5	64	26*	114	9*	98	9*	92
G	9*	200	10*	196	6	180	24*	206	10*	182	9*	197

***$p > 0.10$

**$p > 0.05$

*$p > 0.01$

DUVAL COUNTY SCHOOL BOARD

Jacksonville, Florida

TOTAL COMPENSATORY EDUCATION PROGRAM

Duval County in 1968-1969 had at least eight programs for the disadvantaged. In terms of budget, the largest was kindergarten for the five year olds stressing enrichment, inter-personal relationships, health services, and early discovery of possible learning difficulties. The next largest was the Reading Education and Diagnostics Services (READS) program. It provided individual and classroom assistance to pupils in the second and third grades. It also provided in-service education for teachers in elementary and junior high schools. The third largest program dealing with behavioral problems could be classed under exceptional education as could the fourth largest, dealing with hearing difficulties. The fifth was a summer remedial reading program for grades 3-6.

The sixth largest was an experimental pre school program (SEARCH) selected for detailed analysis in this study because it was similar to a program found to be exemplary by the American Institutes for Research in the Behavioral Sciences. The last two programs involving much smaller sums of money were a program of in-service education for teachers of the disadvantaged, and a science program for underachieving pupils in the junior high schools.

SEARCH FOR EDUCATIONAL ACHIEVEMENT BY REACHING COGNITIVE HEIGHTS PROJECT

Purpose

SEARCH is designed to field test a three-year sequential curriculum including parent education with emphasis upon developing cognitive abilities of children beginning in kindergarten. The anticipated outcome is a revision of the regular early elementary school curriculum.

Target Population

The program was provided for 112 children who were five before January 1, 1969. All were from low socio-economic areas. About 40 percent were eligible for "Follow Through" services.

Distinguishing Features

The program was planned and executed with the assistance of Dr. Ira J. Gordon, Director of the Institute of Human Resources of the University of Florida. The Institute provided advance preparation and consultant services for staff. Stress was placed upon parental involvement in the learning process. Each of the teachers assigned to the program had a full time parent-educator - teacher aide largely responsible for work with parents. Staff consulting was done on a weekly basis with emphasis upon child thought processes, motivation, abstract thinking, meaningful curriculum materials, the learning process, and rate of learning. Evaluation was done by the Florida Education Research and Development Council.

Major Inputs

A total of eleven professionals and one non-professional employee were assigned to the program. The capital outlays were largely for staff preparation (video-tape equipment and electric typewriters).

Evaluation

The program was evaluated at the end of the first year by the

Florida State Education Department. It found the following major strengths:

a) Use of special curriculum and materials
b) Parental involvement
c) Receptivity of teachers to criticism and suggestions
d) Positive changes in teachers' roles and attitudes
e) High morale and enthusiasm of teachers, staff members and pupils
f) Pupils actively involved in choosing and evaluating own learning activities
g) Effective use of individual and small group instruction

The weaknesses were listed as these:

a) Tendency for kindergarten teachers to regress to more comfortable roles
b) Limited work space for kindergarten teachers
c) Late arrival of videotape equipment hindering sample collection of classroom behavior for evaluation purposes
d) Limited involvement of parents in two of the centers
e) Parent educators' schedules do not permit sufficient time for home visits

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Mr. Cecil D. Hardesty, Superintendent
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HOLMES COUNTY BOARD OF PUBLIC INSTRUCTION

Bonifay, Florida

TOTAL COMPENSATORY EDUCATION PROGRAM

The Reading Program in Holmes County, Florida is an important part of its Title I Project. The latter also includes enrichment in art and music; supportive services in health, guidance, and speech; additional teaching materials; and a summer school program.

READING PROGRAM

Purpose

The purpose of the Reading Program is given as improvement of competence of school staff in the teaching of reading.

Target Population

The target population consisted of 452 disadvantaged (low income) elementary school pupils and approximately 500 from the secondary schools. Of the total number served about 94 percent were white and 6 0 percent Negro.

Distinguishing Features

The program was directed by a reading specialist employed to coordinate the program. Specialized materials and equipment were used to improve reading instruction and teachers were introduced to current trends and research, techniques and methods, in the instruction of reading. They received this information through workshops, discussion groups, and the services of the county reading coordinator.

Major Inputs

In addition to a reading specialist on a twelve month basis, a secretary was employed. The largest inputs were for four reading laboratories, equipment, and materials.

Evaluation

The California Reading Test, Form W, was administered to 92 of the participants on September 26, 1968. On May 20 the same number of pupils were given Form X of the same test. The results are summarized below:

	Pre Test	Post Test
Performing at Grade Level +2.0 or more -	6	8
Performing at Grade Level +1.5 to 1.9	3	11
Performing at Grade Level +1.0 to 1.4	12	10
Performing at Grade Level +.8 or .9	4	8
Performing at Grade Level +.6 or .7	5	6
Performing at Grade Level +.4 or .5	4	3
Performing at Grade Level +.2 or .3	5	5
Performing at Grade Level +.1 or -.1	5	7
Performing at Grade Level -.2 or .3	4	3
Performing at Grade Level -.4 or .5	8	4
Performing at Grade Level -.6 or .7	10	4
Performing at Grade Level -.8 or .9	5	5
Performing at Grade Level -1.0 to 1.4	10	8
Performing at Grade Level -1.5 to 1.9	5	3
Performing at Grade Level -2.0 or more	6	7

Acknowledgements

Mr. Gerald Commander, Superintendent
Mr. Robert Hall

BIG RAPIDS PUBLIC SCHOOLS

Big Rapids, Michigan

TOTAL COMPENSATORY EDUCATION PROGRAM

The Pre school and Follow Through Program represents the total compensatory education program in the district. All of the district Title I, ESEA allocation has been earmarked for the program.

PRE SCHOOL AND FOLLOW THROUGH PROGRAM

Purpose

The objective of the program is to provide pre school experience for children who have a readiness age two to three years behind their peers, in order to make up the deficiencies before the regular school term begins.

Target Population

Children are selected to participate in the summer, pre school session based on the results of a pre test and the economic and educational level of the parents. Based on these factors, 45 children were selected to participate in the summer portion of the program.

Distinguishing Features

The program is a multi-stage operation, beginning with a six week summer school and a regular school year follow through program. Children in the summer program attended classes in the morning, five days a week, for six weeks. The program consists of story reading and telling, art, music, and physical activities in order to develop reading and mathematics readiness.

The follow through program during the regular school year consists of counselor aides working with the youngsters. For those students who have completed a year of kindergarten and are below grade level a transition class is provided in the summer session.

A third stage of the program is a "Mothers Club." The purpose of the club is to change parental attitudes toward education and child care techniques.

Major Inputs

During the summer session the major input was staff. Five classroom teachers, one guidance counselor, and three counselor aides are assigned full time during the six week session. The supporting staff consists of five bus drivers and one custodian. Expenditures for instructional supplies and equipment are not a major cost factor.

Evaluation

Pre tests were administered on May 12, 1969. Post tests were administered on July 23, 1969. For 34 pre kindergarteners, the Pintner-Cunningham Primary Form A test showed an average mental age gain of one year, four months - from 3.3 to 4.7. Using the Scott-Foresman Reading Test, fifteen first graders showed a gain from a score of 60.8 to 69.6 out of a possible 100 points. Eight students in the transition kindergarten class showed a gain on this same test from a score of 57 to 68.

Subjective evaluation consisting of questionnaires and classroom teachers' evaluations were also used.

Acknowledgements

Mr. Richard C. Donley, Superintendent
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DETROIT PUBLIC SCHOOLS

Detroit, Michigan

TOTAL COMPENSATORY EDUCATION PROGRAM

Detroit offers a variety of programs for disadvantaged pre school age children. These include a Pre School Program, Head Start, Follow Through, and the Basic Reading Demonstration Project. The district offers two programs primarily for elementary students, namely the Communication Skills Center Project and the Butzel Project. Programs for junior and senior high school students include In-School Junior and Senior High Work Training and Job Upgrading, Senior Intensified Program, Career and Guidance, Upward Bound, National Teacher Corps, Project Diploma, Continuing Education for Girls, and Outdoor Education and School Camping.

COMMUNICATION SKILLS CENTER PROJECT[1]

Purpose

The objectives of the program are 1) to increase reading achievement as measured by standardized tests; 2) to increase language skills.

Target Population

The criteria used to select students for participation in the project were:

1. One or more years retarded in reading achievement
2. One or more years retarded in mathematics achievement
3. One or more years of the following attendance problems
    a. a minimum of 20 days' absence per semester
    b. a minimum of 20 days' tardiness per semester
    c. a minimum of 10 unexcused class absences per semester

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[1] Hawkridge, *op. cit.* (1968), p. 284.

4. One or more years over-aged in grade placement
5. One or more police contacts and/or record(s)
6. Three or more school counselor or principal contacts for disciplinary action
7. A member of a low income family as determined by the O. E. O. sliding scale of family income
8. Referral from an institution for neglected or delinquent children or past attendance in such an institution

At least three of the criteria had to be met before a student received remedial instruction.

Out of a total of 170 students selected approximately 67 percent were below average in I. Q., and approximately 20 percent had an I. Q. below 75.

Distinguishing Features

The students attended the remedial reading center for an hour each day, four days a week. The center was comprised of four portable classrooms, three used for instructional purposes, and one used for administration and diagnosis. Instructional groups rarely exceeded eight students. The students were transported from the sending school to the center and returned by bus.

Major Inputs

The major input in the program was personnel. The certified personnel assigned to the program included one diagnostician-in-charge (Administrator), one psychologist, one social therapist, and six remedial reading teachers.

Large capital expenditures were incurred at the time of the program's inception for classroom furniture, typewriters, bookcases, and other standard items. Special instructional equipment purchased for exclusive use in the program included language masters and filmstrip projectors.

Evaluation

The following table shows average gains made by the students in the program based on pre and post test results for the two semesters of 1968-1969. There was no control group for comparison purposes.

	Vocabulary		Gain in Months	Reading Comprehension		Gain in Months
Grade	Pre Test	Post Test		Pre Test	Post Test	
3	1.69	2.15	4.6	1.62	1.97	3.5
4	2.11	2.62	5.1	2.15	2.57	3.8
5	2.87	3.53	6.6	2.59	3.37	7.8
6	2.88	3.66	7.8	2.34	3.70	13.6

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GRAND RAPIDS PUBLIC SCHOOLS

Grand Rapids, Michigan

TOTAL COMPENSATORY EDUCATION PROGRAM

A total of twenty-one compensatory education programs were in existence during 1968-1969. Thirteen are financed under Title I, ESEA. The remaining eight are financed by EOA, other ESEA funds, state funds, and Civil Rights Act Title IV funds. The programs provide for librarians and librarian aides, pre school, tutors, nurses, consultants, neglected or delinquent children, in-service education, summer school, Head Start, Adult Basic Education, Youth Corps, night school and para-professionals. Approximately 73 full time teachers are involved in the programs affecting 12,490 students. Approximately 523 non-professionals are employed in the programs on a full or part time basis.

COLLEGE FIELDS PROGRAM

Purpose

Academic goals are (1) to raise the pupil's achievement level within two years of his grade placement in reading, mathematics and spelling; (2) to raise the pupil's achievement level at least one grade level in a four month period and (3) that academic assignments be completed with at least 80 percent accuracy 100 percent of the time.

Social objectives are (1) that the descriptive behavior for which the referral was made shall cease to be observable, (2) that the pupil shall be in his home by 10:00 p.m. on school nights, and (3) that the frequency with which the pupil makes contact with delinquency officers (juvenile court, police, etc.) shall decrease.

Other objectives are (1) that the pupil's attendance record shall improve and (2) that graduates of the program shall remain in school.

Target Population

Children displaying overt symptoms of maladjustment to school and society behavioral standards were selected for participation in the program. Referrals were made by the principal or the court through the personnel department. In the 1968-1969 school year, sixty-three students participated in the program grades 8-10.

Distinguishing Features

Rented facilities are employed to house the program. Five rooms are included in the rental complex. Full time instructors provide a specialized program of instruction for the participants. Numerous techniques are used. All of them stress positive reinforcement, i.e., encouraging the desired behavior rather than punishing unwanted behavior. A noon meal is provided each of the students.

Major Inputs

The major input was staff. Three classroom teachers were assigned full time to the program. The other inputs were transportation, rental of facilities, and food service.

Evaluation

Of the program graduates, there is a 33 percent success rate in the regular school program. The program raised eleven students' grade levels by two years, and twenty-five students' grade levels by one year. The percentage of boys who have continued and stayed in the program is 60. The curfew rate was 80 percent (all boys are in at 10:00 p.m., 80 percent of the time). The attendance rate was 82 percent.

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YPSILANTI PUBLIC SCHOOLS

Ypsilanti, Michigan

TOTAL COMPENSATORY EDUCATION PROGRAM

The total compensatory program in Ypsilanti includes programs serving disadvantaged students from pre school through high school. The Pre School Curriculum Demonstration Project and the Ypsilanti Carnegie Infant Education Project serve pre school children. The supplementary Kindergarten Intervention Program (SKIP) is a supplemental program for kindergarten. Middle Cities Program is aimed at elementary students and the Remedial Reading Program is for elementary and junior high students. The Personalized Educational Program (PEP) is for potential junior high school drop-out students.

PRE SCHOOL CURRICULUM DEMONSTRATION PROJECT

Purpose

There are two objectives of the Project. They are:

1. To offer a pre school designed to ameliorate the educational deficits of the disadvantaged pre school child.
    a. To assess three curricula, each designed to improve the disadvantaged child's socio-psychological state as measured by standardized evaluation procedures.
    b. To effectively alter and improve the disadvantaged mother's child rearing practices which have been found to be a basic source in creating intellectual deficits for the disadvantaged child.
2. To document and disseminate the procedures employed by the pre school personnel.
    a. To identify procedures and produce materials which document the effective assets of each curriculum style.

b. To effectively communicate and disseminate the documented information through the use of the entire range of information services - visitations, conferences, lectures, published materials, mailed materials, etc.

Target Population

The index of cultural deprivation used to determine elegibility has three components:

1. The father's occupation is rated on a four point scale ranging from unskilled work to skilled work. If no father is present, the mother's occupation is used.
2. The number of years of education completed by both mother and father is averaged, or, in the case of only one parent, the total number of years of education completed is used.
3. Density in the home is calculated by dividing the number of rooms in the home by the number of people in the home; this ratio is then multiplied by one half to give this third component half the weight of the other two components.

"Score" distributions for each of these components are roughly standardized by dividing each component by its standard deviation. These scores are then totaled for each family to give its cultural deprivation index.

The children of families scoring at or below the cutoff point of the cultural deprivation index are then given the Stanford-Binet intelligence (I. Q.) test, and their score on this is the second criterion of acceptance. Those testing as educably mentally retarded (usually an I. Q. of less than 85) can be accepted into the program; the only stipulation is that there be no major organic factor apparent in their diagnosed retardation. The children chosen are divided equally according to race, sex, and age. They are randomly assigned to the three demonstration programs. There are about sixteen children in each program.

Distinguishing Features

Two small one-room school buildings are used for the Project. They have been remodeled with carpeting, acoustical tile, central heat, and one observation room with one-way mirrors and a sound system.

There are three different curriculum styles in use with three groups of children. They are: 1) the Cognitively Oriented curriculum, 2) the Language Training curriculum and 3) the Traditional Nursery curriculum. The Cognitively Oriented curriculum is a structured curriculum organized around cognitive goals derived from Piaget. The Language Training curriculum is a task-oriented curriculum employing many techniques of foreign languages training programs and includes arithmetic and reading. The Traditional Nursery school curriculum is, by its name, the traditional method utilizing unit teaching about general concepts with close attention given to the individual emotional and social needs.

The home "curriculum" content is based on the curriculum style the child is experiencing. The teachers, working in the home, train the mother to support the cognitive growth of her child with special attention given to the mother's teaching style, language patterns and child management techniques.

Major Inputs

The major input to the program was staff. Each of the three classes had two teachers and one teacher aide. Supporting services included one director, part time, and the full time services of an assistant director, curriculum writer, curriculum supervisor, assistant supervisor, audio-visual specialist, teacher trainer, research assistant, custodian, bus driver, and two secretaries.

When the program was initiated large non-recurring capital expenditures were made for building renovation and equipment.

Evaluation

Evaluation for 1968-1969 was not available for dissemination. The evaluation of the program that was available was based on pre and post test results for 1967-1968. The Stanford-Binet Test was used. The post testing was performed in June 1968 after two years of pre schoo. The results for four year olds is summarized in the following table.

	UNIT (N-8)	Cognitive (N-11)	Language (N-8)
Pre Test	76.4	75.3	73.9
Post Test	94.1	98.6	98.2
Change	17.6	23.4	24.4

The results for three year olds is summarized in the following table. The post testing was performed in June, 1968 after one year of pre school.

	UNIT (N-8)	Cognitive (N-11)	Language (N-8)
Pre Test	73.6	82.7	84.4
Post Test	101.1	110.7	114.6
Change	27.5	28.0	30.2

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BUFFALO PUBLIC SCHOOLS

Buffalo, New York

TOTAL COMPENSATORY EDUCATION PROGRAM

Compensatory education in Buffalo is funded from several sources - ESEA Title I, O. E. O., and New York State Urban Aid. The programs extend from pre school to secondary education and include various projects. All programs stress individualization, curriculum development and improvement, community involvement and participation, and the strengthening of quality education for every child on every level.

Financed under ESEA Title I are programs entitled Aspire, Early Push, Enrichment, Opportunity, Remedial Math, Remedial Reading, After School Plus, and Pupil Personnel. Under O. E. O. is project Follow Through. Under State Urban Aid are programs such as Emphasis on Reading, Project PEP (Program to Excite Potential), In-service and Curriculum Development.

PROJECT EARLY PUSH[1]

Purpose

The objectives of the program were:

1. To provide learning experiences for city children which will enable them to become eventual academic successes, and
2. To create learning environments that will encourage the development of positive self-images.

Target Population

The only requirement for entrance into the program is that the child must be between the ages of 3.9 and 4.9 years and be a resident of the inner city.

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[1] Hawkridge, op. cit. (1969), p. 59

Distinguishing Features

The Early Push classroom consists of various interest centers such as library, housekeeping, art, science, recreational and listening. The objective is to provide children with meaningful activities under adult supervision. The teacher is to intensify the quality and quantity of interaction between child and adult. Special equipment used are climbing equipment, large metal mirrors, woodworking benches and a variety of educational toys.

Parental involvement is an integral part of the program. One or both parents of 86 percent of the children attended meetings with school staff during the 1968-1969 school year.

Major Inputs

The major input to the program was staff. Nineteen classroom teachers and nineteen classroom aides comprised over half of the expenditures. Supporting services included two social workers, one psychologist, two clerks, and two administrators. The next largest input in terms of expenditure was a snack provided twice daily for each of the children participating in the program.

Evaluation

The pre test and post test results for 1968-1969 on the Wechsler Pre school and Primary Scale of Intelligence are:

VERBAL TESTS	PRE TEST N=62	POST TEST N=60	MEAN DIFFERENCE
INFORMATION	7.6	8.6	+ 1.0
VOCABULARY	8.6	8.2	- .4
ARITHMETIC	8.8	9.7	+ .9
SIMILARITIES	9.4	10.8	+ 1.4
COMPREHENSION	8.1	9.2	+ 1.1
SENTENCES	8.8	9.6	+ .8
PERFORMANCE TESTS			
ANIMAL HOUSE	8.3	8.9	+ .6
PICTURE COMPLETION	8.7	9.5	+ .8
MAZES	7.9	9.1	+ 1.2
GEOMETRIC DESIGN	8.6	9.9	+ 1.3
BLOCK DESIGN	9.3	9.3	0.0

PLUS AFTER SCHOOL PROGRAM[1]

Purpose

The objectives of the program were:

1. To help the children of the target area use time not usually spent in school to improve their abilities in reading and mathematics.

2. To make available to these children enrichment programs to develop their skills in these areas.

Target Population

Project children were selected by the principal with the assistance of the classroom teacher. Achievement test scores and the teachers' estimates of the child's reading or arithmetic level were used as a basis for selection. In most cases, referrals were one or more years below grade level.

The children participating in the program were from the city's target areas. Approximately 75 percent were Negro, 20 percent white and 5 percent Puerto Rican, grades 2-6.

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[1] Hawkridge, op. cit. (1969), p. 113.

Distinguishing Features

Children in the Program were provided with a remedial and enrichment program in their schools during after school hours (3:30 p.m. to 5:00 p.m.) They were taught individually or in small groups. Children attended fifty-one sessions (three afternoons a week) during a five month period from December 11, 1968 through May 1, 1969. The program was conducted in twenty-eight schools for 2,443 children.

Class size was fifteen to twenty students. There was one remedial reading class and one enrichment class each afternoon the program was in session. Class periods were of forty-five minutes duration. Subject areas of instruction were remedial reading, physical education, arts and crafts, art, science, educational games, music, enrichment study, library and drama.

Evaluation

The evaluation of the program for 1968-1969 was subjective. It consisted of a questionnaire completed by administrators, teachers, teacher aides and parents. For an objective evaluation of the 1966-1967 program see American Institutes for Research (1969), pages 117-118.

EXPANDED LANGUAGE ARTS PROGRAM[1]

Purpose

The five objectives of the program are:

1. To improve reading achievement of some below-average secondary students in disadvantaged areas
2. To teach useful writing skills
3. To help pupils acquire a standard dialect
4. To reduce class size for effective individual instruction

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[1] Hawkridge, op. cit. (1969), p. 132.

5. To provide in-service training with the aim of improving instruction

Target Population

In 1968-1969, 1600 pupils in five junior and senior high schools in the Core Area of Buffalo participated in the program. The ages of the participants ranged from twelve through nineteen. Most of the participants were pupils enrolled in grades seven through twelve and were from the bottom third of their classes. They were selected by the guidance counselors and were those who were in most need of remedial language arts.

Distinguishing Features

No English class in the program has more than fifteen pupils; many have less. This small size allows the teachers to give more individual instruction than they would give in a large class. Three of the participating schools have oral language laboratories equipped with ten listening booths and a teacher's console.

Some of the methods used in the teaching of English as a second language are used by the language lab teachers. They give pupils intensive practice in the recognition and use of standard forms by means of drills, contrastive instruction and a variety of speech experiences designed to develop control of the standard forms.

Writing skills are also emphasized. Various kinds of writing experiences are provided: expository, descriptive, narrative and argumentative.

In addition, one language laboratory teacher visits each junior and senior high school in the city. The purpose of the first visit is to explain some of the differences in the lexicon, sound and structure of the non-standard dialect as compared with the standard dialect; and the purpose of the second visit is to review some problems in speaking encountered by her pupils, lesson materials designed to eliminate these difficulties, and an evaluation of these lesson materials.

Major Inputs

The major input in the program was personnel. Employed in 1968-1969 were twenty classroom teachers, one clerk, and one administrator for a total of twenty-two people.

Capital expenditures were incurred at the time of the program's inception for listening booths, tape recorders, 35 mm and 16 mm projectors, record players, software for this equipment, and furniture such as desks, chairs and filing cabinets.

Evaluation

The Language portion of the Advanced Stanford Examinations were administered to the eighth grade students participating in the program on a pre test and post test basis.

The experimental group consisted of 106 students in extended language arts classes at one school, and the control group consisted of thirty-one students selected from one regular English class at another school.

The pre and post test means for both groups were:

	Experimental Group	Control Group
Pre test mean	4.9632	5.7709
Post test mean	5.8839	6.8064
Deviation score	0.9207	1.0355

PLUS READING AND MATH PROGRAM[1]

Purpose

Reading:
1. To aid the classroom teacher in achieving the best reading program for her class;
2. To provide help for the classroom teacher in diagnosing and giving remedial assistance to problem readers;
3. To teach phonetic and word-attack skills, comprehension, vocabulary improvement, and work and study habits with small group instruction and to encourage reading for recreation.

Math:
1. To aid the classroom teacher in achieving the best mathematics program for her class;
2. To provide help for the classroom teacher in diagnosing and giving remedial assistance to students having poor achievement in mathematics;
3. To teach number concepts and operations and problem solving through small group instruction and to improve work and study habits.

Target Population

The pupils in the program came from heterogeneous inner-city neighborhoods in which the occupations of heads of families varied from unskilled to professional, with some receiving welfare. Approximately 75 percent of the project pupils were Negro, 20 percent white, and 5 percent Puerto Rican. The age range was from seven to eighteen years and involved grades one through eight.

Children were selected for the program by the principal, classroom teachers, and reading teachers. Achievement and readiness tests were used as a basis for selection in conjunction with teacher estimates of reading and math levels. In most cases, referrals were one to two years below grade level.

A total of 6,480 students were served by the program.

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[1] Hawkridge, op. cit. (1969), p. 99.

Distinguishing Features

Classes for primary students were of thirty minutes duration and forty-five minutes for intermediate and junior high classes. Class size was held to six or less students.

The reading and math classes were designed to be corrective rather than developmental. In reading, emphasis was placed on the use of manipulative materials to give concrete examples of how numbers work. Number concepts were discussed rather than learned by rote.

In reading, children were grouped according to their reading ability. In math, homogeneous grouping was used whenever possible to increase the efficiency of instruction. One-to-one teacher-pupil relationships were established to meet the individual needs of particular children.

In reading and math the remedial teachers worked closely with the classroom teachers in designing a coordinated program of activities.

As each teacher individualized instruction, program content differed from class to class.

Three other aspects of the program were provided in addition to the corrective classes. A field trip program was provided for all students in the program. An art-music-physical education program was provided for students in grades one through three. A pupil personnel service was provided for all pupils.

Major Inputs

A total of 218.5 full time equivalent personnel were involved in the program. These included 128 remedial reading teachers, forty-one math teachers, six administrators, eight art teachers, two music teachers, eight librarians, 14.5 guidance counselors, five social workers, two psychologists and four clerk typists.

A total of $42,760 was spent for field trips which were provided for all children in grades one through eight. A total of $13,413 was spent for admissions on these field trips.

In previous years books, film strips, and other supplies had been purchased for the programs.

Evaluation

No objective evaluation was performed in 1968-1969. For previous evaluation, see American Institutes for Research (1969), p. 99.

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COBLESKILL CENTRAL SCHOOLS
Cobleskill, New York

TOTAL COMPENSATORY EDUCATION PROGRAM

All of the district compensatory education programs offered during 1968-1969 were funded under Title I, ESEA. The improving Educational Opportunities for Children from Low Economic Level program included a summer Pre school Program, a Guidance Program during the regular school year, and a Mentally Handicapped program grades 2-6.

IMPROVING EDUCATIONAL OPPORTUNITIES

Purpose

The objectives of the program are:

1. To offer each child the opportunity to progress scholastically at his own best pace in order that he may develop adequacy and competence at his highest possible level in the basic skills.
2. To promote his physical well being and develop his personal health habits so he may function at his best physically.
3. To foster the use of the basic rules for optimum mental and emotional health.
4. To provide as many cultural and social opportunities as possible so that he may function as an acceptable member of his school and community.
5. To give special emphasis to principles of character development.
6. To lay a foundation for occupational skills in the elementary division and to actively seek beginning occupational experiences as soon as the child is capable.

Target Population

The program was designed for educable mentally retarded children with low economic family backgrounds, grades 7-12.

Criteria used for selecting students were: 1) An intelligence quotient between 50-75; 2) AID for Dependent Children data; and 3) Poor school performance. Fifteen students participated in 1968-1969.

Distinguishing Features

The program is a continuation of a program started in 1965. It is conducted during regular school hours with no special attempt being made at segregating the students from the rest of the school, other than assigning them to the same classroom. The classroom was specially equipped for use by the class and included a variety of instructional audio and visual aids. Instruction included spelling, mathematics, English, social studies, science, and reading.

Major Inputs

The major input was staff. One full time teacher and one part time teacher aide were assigned to the program. In the first year of the program (1965) large non-recurring expenditures were made for equipment and supplies.

Evaluation

The evaluation was based on the results of the Metropolitan Achievement Test Elementary Battery, Form A. Of the fifteen children participating in 1968-1969, six participated in both 1967-1968 and 1968-1969. The average increase in grade equivalent between these two years for the six students was .37.

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Mr. Leslie Wiley, Supervising Principal
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BOARD OF EDUCATION OF THE CITY OF NEW YORK
New York, New York

TOTAL COMPENSATORY EDUCATION PROGRAM

Budgets for supplementary city school programs funded by the federal and state government totaled approximately $178 million during 1969-1970. Most of the projects funded focus on assistance to economically disadvantaged pupils in poverty areas. There are more than 500 specially funded programs underway. The majority of the funds, $108 million, are forthcoming under the Elementary and Secondary Education Act. The New York State Urban Education Program provides 56.5 million and miscellaneous sources provide the balance of 13.5 million.

The Homework-Helper Program selected for study is funded primarily under ESEA I, with some funds provided by New York State under its Urban Education Aid program.

HOMEWORK HELPER PROGRAM[1]

Purpose

The objectives of the program are:

1. To encourage high school students to remain in school (through economic aid).
2. To present a new opportunity for these high school and college students to achieve success.
3. To motivate high school students toward improved academic achievement.
4. To expose high school students to a tutorial experience at an age still young enough for them to choose teaching as a career.

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[1] Hawkridge, op. cit. (1968), p. 133.

5. To provide individual assistance to elementary, junior high, and senior high school pupils in need of help with basic skills.

6. To provide models for the elementary, junior and senior high school pupils, possibly increasing their aspirations for school success.

7. To promote integration through tutor-pupil assignments and activities.

Target Population

Pupils to be tutored were selected by their teachers and supervisors on the basis of their need for the development of independent work habits and study skills as well as on the basis of reading retardation. During 1968-1969 approximately 4500 elementary students participated in the program. Approximately 1500 secondary pupils were employed as tutors to work with the students. Tutors were selected on the basis of recommendation from their guidance counselors and such criteria as attendance, parental permission, grades, and geographic proximity to the Homework Helper Centers.

Distinguishing Features

Tutors from the 10th, 11th and 12th grade level worked with students from the upper elementary grades that were functioning below grade level. There were approximately 100 Homework Helper Centers in operation during 1968-1969. Each center is staffed by one regularly licensed master teacher and one to three school aides. Each center is located in an elementary school and uses two or more of its regular classrooms, and in some cases, its library and laboratory facilities.

Tutorial classes are held in the participating schools Monday through Thursday from 3:00 to 5:00 p.m. The sessions begin with a snack. Then comes a forty minute period of help in homework assignments and improving study skills. The balance of the time is devoted to reading or other academic subjects.

Major Inputs

Approximately 1500 tutors were employed at a salary range of $1.50 to $2.00 per hour. The tutors were supervised by approximately 100 master teachers employed on an hourly rate basis. The other expenditures for supplies and materials were small in terms of the total expenditures of approximately $1.2 million.

Evaluation

During 1969 two separate evaluations were made of programs located in two districts. Both studies were based on interviews, observations, and questionnaire surveys. For earlier evaluations see American Institutes for Research (1968, p. 133).

Acknowledgements

Mr. Irving Acker, Acting Superintendent
Dr. Albert R. Deering

ROCHESTER CITY SCHOOLS

Rochester, New York

TOTAL COMPENSATORY EDUCATION PROGRAM

Rochester offers a variety of compensatory education programs for disadvantaged children funded under Title I, ESEA. Some of the larger ones in terms of the number of students served are: Elementary School Counseling, Instructional Materials Center, Remedial Reading, Field Trips, Strengthening Basic Literacy in an Inner-City High School, Inter-City Audio Visual Bus Trip for Educationally Deprived Children, Speech and Hearing Therapy, and English as a Second Language.

The World of Inquiry School is one of nine components of Project Unique. It is funded under Title III, ESEA for a period of three years (September, 1967 - June, 1970). The other components are:

1. Community Resources Council
2. Community Teachers
3. Teacher Internship
4. Storefront School
5. Urban Education Major
6. School Parent Advisors to the Neighborhood
7. Clearing House for Student Aid
8. Urban Suburban Transfer Plan

WORLD OF INQUIRY SCHOOL

Purpose

The objectives of the School are four in number. They are:

1. To make available through demonstration, aspects of the World of Inquiry's innovative program - 1) to demonstrate the educational and social value of a multi-aged, non-graded, multiachievement level student population, 2) to demonstrate the openness and positive attitudes towards

change on the part of World of Inquiry pupils that result from the presence of open interest areas within the school, and 3) to demonstrate the benefits of a multi-racial staff and faculty.

2. The implementation of teacher growth through active participation in all parts of the program - 1) to utilize the human and cultural resources of the community as they relate to the individual and group needs of the school community, 2) to utilize non-traditional curricula materials and methods for measuring these materials and procedures and 3) to be responsive to children's progress or to their lack of it.

3. To promote effective human interactions - 1) to promote continuous progress for each student by means of a wide variety of resources and materials, and 2) to promote an emotional climate in the classroom most conducive to learning.

4. To maximize the child's growth potential - 1) to provide opportunities for spontaneous learning which is both more interesting and lasting, 2) to provide opportunities for human interaction that will improve racial attitudes on the part of whites and non-whites, 3) to provide opportunities for children to engage in activities that will improve occasions for human interaction that will strengthen the child's social feeling and heighten his self-image, and 4) to provide opportunities for children to encounter situations that will develop their decision-making skills.

Target Population

Admittance to the World of Inquiry School is by application. The parent(s) secure an application blank, and submit it to the school. Ability is not a criterion for selection of students.

The criteria for selecting students are:

1. Half boys and half girls

2. Approximately equal numbers of children at each age level from three to eleven years old

3. Racial distribution of 56 percent Caucasian, 36 percent Negro, 5 percent Puerto Rican, and 3 percent others (Oriental, Indian, etc.)

4. An economic (parental income) distribution of 25 percent $0 to $6,999, 50 percent $7,000 to $11,999, and 25 percent $12,000 and up.

In addition to the above a geographic distribution of students is attained by following the following criteria:

1. central city - 30%
2. middle city - 30%
3. outer city - 20%
4. suburban - 20%

During the 1968-1969 school year, 150 students age three to eleven were enrolled in the school.

Distinguishing Features

The students are placed in non-graded, multi-aged, multi-racial groups. As of September 1, 1968 the arrangement of the students were: sixteen children ages three and four in the nursery, forty children ages five through eight (plus one three year old) in 2 Primary Family Rooms, fifteen children ages six through eight in a Primary Intermediate Family Room, thirty children ages four through eleven in 2 Family Rooms, and fifty children ages seven through twelve in 2 Intermediate Family Rooms.

Non-graded classes and a continuous progress instructional program provide the setting for the curriculum. Basic instruction in reading and arithmetic is provided to "family" groups. Selection by the student with consultation and consent from the staff from nine interest areas complete the student's curriculum. Interest areas are art, industrial art, social studies, music, mathematics, science and physical education. As there are no grades or report cards, reporting is done via parental conferences.

Major Inputs

Staffing consists of fifteen classroom teachers and ten teacher aides. In addition, the services of a guidance counselor, a librarian, a media-resource advisor, and an audio-visual person are available.

Evaluation

Seventeen six year olds were administered the Primary I Battery of the Metropolitan Achievement Tests at the end of the year. The median results were: Word Knowledge 2.7, Word Discrimination 3.1, Reading 3.0, and Arithmetic 2.5.

For nineteen seven year olds the mean results of Primary II Battery were Word Knowledge 4.9, Word Discrimination 4.6, Reading 4.4, Spelling 4.2, and Arithmetic 3.9.

For seventeen third graders the median results on the Elementary Battery were Word Knowledge 5.0, Word Discrimination 5.3, Reading 4.3, Spelling 4.9, Language 4.2, Arithmetic Computation 4.1, and Arithmetic Concepts and Problem Solving 4.6.

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SYRACUSE PUBLIC SCHOOLS
Syracuse, New York

TOTAL COMPENSATORY EDUCATION PROGRAM

In 1968-1969 Syracuse had thirty-three programs for disadvantaged students. Some of the major ones were, Self-Esteem curriculum, Integration, Project Opportunity, Head Start, and the program included in this study, Individualized Instruction in a Prototype School.

INDIVIDUALIZED INSTRUCTION IN A PROTOTYPE SCHOOL (IIPS)

Purpose

One elementary school (Porter) was set up to give individualized programmed instruction in the following areas:

1. Science 1 and 3
2. Reading K-3
3. Mathematics 1-6
4. Across Discipline Program - Pre primary

Target Population

The Porter school is located in the inner-city. All of its 690 pupils are included in the program with no screening since the school qualifies for Title III funds under ESEA.

Distinguishing Features

The program is an attempt to apply a systems approach to engineer a working instructional system. The system is to be tested between September 1968 and June 1971.

1. Science: The AAAS material is combined with team planning to test the viability of team planning with individualization.
2. Reading: The SRA primary reading emphasizing linguistics, decoding and listening skills.
3. Mathematics: The Appleton - Century - Croft curriculum is used in grades 2-6.
4. Across - Disciplines Program: Pre primary auditory perception, visual - motor - coordination, visual perception, tactile perception, and classification.

Major Inputs

The additional personnel assigned to the school included 2 1/2 teachers, a part time audiovisual technician, twelve classroom aides, a secretary aide, a part time director, and a part time psychologist. The equipment is for listening centers and kits produced by the various program originators.

Evaluation

The experimental Porter School is compared with the "control" Frazer School. The results are indicated below for the California Achievement Tests - Reading and Arithmetic, grades 1 and 2, June, 1969, in terms of mean grade equivalents:

	Reading		Arithmetic	
	Porter	Frazer	Porter	Frazer
Grade 1	1.7	2.0	1.7	1.7
N=	(93)	(54)	(97)	(56)
Grade 2	2.2	2.8	2.5	2.9
N=	(88)	(57)	(84)	(57)

The Iowa Tests of Basic Skills, Reading and Arithmetic were given in grades 3-6. The mean grade level scores for grades 3 and 6 for the two schools in June, 1969 were:

	Reading		Arithmetic	
Grade 3	3.3	3.1	3.7	3.7
N=	(80)	(73)	(80)	(73)
Grade 6	6.2	5.8	6.4	6.4
N=	(83)	(53)	(83)	(53)

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Mr. Julius Deuble
Mr. Sheldon Mendelson
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AUSTIN INDEPENDENT SCHOOL DISTRICT

Austin, Texas

TOTAL COMPENSATORY EDUCATION PROGRAM

The major thrust of Austin's compensatory education program is in the area of remedial reading. However, the district does provide several other supporting programs for the disadvantaged. These include a Head Start Program, pre school instructional program for non-English speaking children, before and after school study assistance centers, tutoring services, and special projects aimed at individualizing instruction in grades one through six.

REMEDIAL READING PROJECT

Purpose

The program has two objectives:

1. To improve the reading achievement of educationally disadvantaged children.
2. To increase the retention rate at the elementary school level.

Target Population

The program was provided for 1700 students six to thirteen years of age. They were selected on the basis of the results of Metropolitan Reading Achievement Tests. Many of the children were from bi-lingual homes, or from homes where non-standard English is spoken. The sixteen elementary schools involved were eligible for Title I ESEA support.

Distinguishing Features

Special reading teachers are placed in grades one through three in the ratio of one to 4.75 regular homeroom teachers, and in grades four through six in the ratio of one to 5.5 regular homeroom teachers. Special reading teachers emphasizing basic reading skills spend two periods a day in each primary class and one period a day in each intermediate grade.

Major Inputs

The major input was personnel. Forty-nine reading teachers, sixteen guidance counselors, sixteen home visitors, one technician, 5.5 secretaries, sixteen classroom aides, one reading supervisor, and one half time administrator were assigned to the program. Capital outlay included listening stations, television receivers, projectors and copying machines.

Evaluation

Pre and post tests were administered in September and May. They were the various forms of the Metropolitan Achievement Tests. The results are summarized below.

Grade	Pre Test Mean	Post Test Mean	Change
2	1.7	2.4	0.7
3	2.4	3.1	0.7
4	3.1	3.7	0.6
5	3.6	4.1	0.5
6	4.4	5.0	0.6

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Dr. Irby Carruth, Superintendent
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BRENHAM INDEPENDENT SCHOOL DISTRICT

Brenham, Texas

TOTAL COMPENSATORY EDUCATION PROGRAM

The district's compensatory education program effort was concentrated in one Title I ESEA program encompassing Language Skills Development, Science, Social Studies and Mathematics.

LANGUAGE SKILLS DEVELOPMENT PROGRAM

Purpose

This program is designed to provide additional teachers and aides to enable the educationally deprived children to have more individualized instruction in a regular classroom situation.

Target Population

The program was provided for 1551 pupils ages six through fifteen. All were from low socio-economic areas. The majority of the students were Negro-Americans (1031) who had been absorbed by the district since 1960 through centralization with small rural schools. There were also 492 Anglo-Americans and twenty-eight Mexican-Americans in the group.

Distinguishing Features

Since the students came from poor environments, the school attempted to give basic education and cultural experiences which were lacking. The teaching methods did not differ from the other self contained classrooms but the amount of individual instruction in the areas of language skills development, science, social studies and mathematics was increased.

Major Inputs

Nine classroom teachers, fourteen teacher aides, three secretaries, two nurses, one attendance teacher, one guidance counselor, and one administrator were assigned to the program. The capital outlays were largely for student visual and auditory aids such as film and filmstrip projectors, listening stations and record players.

Evaluation

The students were tested with the California Achievement Test using different forms for pre test and post tests. The pre tests were administered in September or October and the post tests were given in April or May. In the following table the class mean is given in grades two through six.

	Reading		Arithmetic		Language	
Grade	Pre Test	Post Test	Pre Test	Post Test	Pre Test	Post Test
2	1.8	2.5	1.7	2.3	2.1	2.9
3	2.8	3.5	3.1	3.6	2.9	3.6
4	3.6	4.5	4.2	5.0	3.7	4.6
5	4.6	5.2	5.0	6.0	4.2	5.6
6	4.9	5.6	5.8	6.5	5.4	6.0

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Mr. H. W. Eikenhorst, Superintendent
Mrs. Ruth Gurka
Mrs. Lois Halle
Mr. Milton Krause

GALENA PARK INDEPENDENT SCHOOL DISTRICT

Galena Park, Texas

TOTAL COMPENSATORY EDUCATION PROGRAM

In 1968-1969 Galena Park had five programs for the disadvantaged. Four were federally financed and the fifth was funded locally. Of the federal programs, the program that had the largest budget was the Remedial Reading Program for 450 primary and intermediate students. The other programs were designed to strengthen library resources, guidance and testing, instruction in science, mathematics, modern foreign language, history, geography, civics, economics, English and reading. The locally funded program, Small Classes, is for students who are educationally disadvantaged when they enter the first grade.

SMALL CLASSES

Purpose

The small classroom project is designed to identify those students who would not normally be able to progress in the regular classroom and give them the remedial help that they need in the first three years of school.

Target Population

A pre school clinic is established in the Spring in various schools and churches around the district to administer a screening test for proper grade placement. The test was developed locally and is administered by teams of professional and volunteer help. The test has three parts. Part I contains ten questions dealing mainly with arithmetic. Part II is to reproduce simple pictures printed on 3x5 cards. Part III is to draw a person. The average I. Q. of students participating in the program was 94, and the average for the school district was 103. However, I. Q. was not a criterion for pupil selection.

The program was provided for 410 students six to ten years of age. Most of the students were from low socio-economic areas.

Distinguishing Features

The program is distinguished by its early identification of the disadvantaged child, the group cohesion to allow the child to identify with a class for an extended period of time, and continual evaluation of his progress. Using SRA materials, the student is not allowed to progress to the next series of books, until he has satisfactorily completed the previous work. The class is maintained at under eighteen students. A close home-school relationship is established by visiting teachers spending a large block of time making home visits and coordinating the efforts of the home and the school.

Major Inputs

Twenty-six full time classroom teachers were assigned to the program. A portion of the time of eleven counselors, two speech therapists, six visiting teachers, eight nurses, two secretaries, five administrators, a psychologist and a psychiatrist were also allotted. There was not capital outlay for equipment that was not provided for other primary grades, but $5,000 extra was provided for the SRA Lift Off reading materials.

Evaluation

Tests are administered individually to the students as they progress through the program. Students are tested in the fourth and fifth grades. The results are reported below for ninty-three pupils from small third grade classes in 1967-1968. They were tested on the California Achievement Battery at the fourth grade level in the fall of 1968.

	Average Grade Placement	
	Small Classes	District Averages
Reading		
Vocabulary	3.5	4.6
Comprehension	3.5	4.4
Arithmetic		
Reasoning	4.0	4.6
Fundamentals	4.2	4.4
Language		
Mechanics	3.4	4.0
Spelling	3.5	4.0

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Mr. W. C. Cunningham, Superintendent
Mr. A. E. Haley
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WACO INDEPENDENT SCHOOL DISTRICT

Waco, Texas

TOTAL COMPENSATORY EDUCATION PROGRAM

During 1968-1969 the district provided a variety of programs for educationally disadvantaged students funded under Title I, ESEA. At the elementary level, a follow-through program for first grade children who had attended federally funded kindergartens and a kindergarten class for non-English speaking five year olds were offered. In addition, a remedial reading program was provided for children in grades three through twelve. A program for special education classes is provided for both elementary and secondary children. At the secondary level subject area specialists have worked on a project to develop teaching techniques and materials for compensatory education. The focus of this study was on the district's "Catch-Up" summer program for secondary students.

PROJECT CATCH-UP

Purpose

The objectives of the program are:

1. To change pupils' attitudes toward school and education.
2. To provide opportunities for each student to experience worthwhile and meaningful success in various activities.
3. To provide every student an opportunity of taking courses of interest which he is unable to pursue during the regular term.
4. To lower dropout rates and improve school attendance.
5. To foster in each student a more positive image of himself and his worth in society.

6. To provide every student an opportunity for purposeful investigation and individual and group analysis to promote critical thinking and meaningful learning.
7. To increase each student's expectation of success in the various school activities.
8. To motivate an improved attitude toward school and the worth of an education.
9. To provide activities more directly related to present circumstances.
10. To increase the occupational and educational levels of each individual student.
11. To provide each student an opportunity to make up for credit work failed during the regular term.
12. To provide every student an opportunity of strengthening himself in subject areas in which there are weaknesses.
13. To provide every student an opportunity to enrich his knowledge of a subject for which he has particular interest or ability.

Target Population

Factors used in the screening process of applicants for the summer program were:

1. Academic achievement and age
2. Teacher recommendation
3. Composite achievement test score
4. Family background
5. Communication skills

During the summer of 1969, 350 students from low income families were enrolled in the program. Of these, 133 were Negro, 84 were Mexican-Americans, and 133 were white.

Distinguishing Features

The summer program was structured under four major curriculum headings: Academic, Cultural, Occupational, and Recreational. The program lasted for six weeks. The students attended classes six hours per day, five days per week. Classes and/or workshops were organized for remedial reading, language arts, mathematics, physical fitness, arts and crafts, social studies, natural science, drama, music, occupational orientation, and use of leisure time. Field trips, hiking, camping, and nature study were an integral part of the program.

Major Inputs

The major input was staff. Assigned to the program full time were twenty-one classroom teachers, two guidance counselors, one social worker, two nurses, one librarian, three bus drivers, two maids, and four cooks. The other inputs were for pupil transportation and food service.

Evaluation

Different forms of the Gates Silent Reading Test were administered on June 5, 1969 and again on July 10, 1969 to students participating in the program. A comparison group was not used. The table below summarizes the results.

		Number of Students Scoring According to National Norms					
		25%tile and Below		26-50%tile		51-75%tile	
Grade	Number of Students	Pre Test	Post Test	Pre Test	Post Test	Pre Test	Post Test
6	77	30	23	46	52	1	2
7	100	52	38	48	62	0	0
8	73	41	34	25	32	7	7

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Mr. Avery R. Downing, Superintendent
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Mr. Barry Thompson

HARTFORD PUBLIC SCHOOLS

Hartford, Connecticut

TOTAL COMPENSATORY EDUCATION PROGRAM

In 1968-1969 Hartford had thirty-six programs for disadvantaged students. Some of the major ones were Child Development, New Careers, Higher Horizons "100", Reading Improvement, English as a Second Language, School Readiness, Negro History, Sphere, Child Development, Learning Centers, School and Community Work Study, Teacher Corps, Hartford 74, Follow Through K-1, Martin Luther King - Student Workers, and the two programs that were included in this study, Project Concern, and Intensive Reading Instructional Teams.

INTENSIVE READING INSTRUCTIONAL TEAMS (IRIT)[1]

Purpose

The objective of the program was to reduce or eliminate potential reading problems by intensive reading instruction in grade 1.

Target Population

The criteria for pupil selection were:

1. Enrollment in an inner-city school qualifying for ESEA Title I funding.
2. Teacher recommendations.
3. Kindergarten survey test scores.

Based on the criteria, 250 pupils were referred for IRIT enrollment.

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[1] Hawkridge, *op. cit.* (1968), p. 150.

Distinguishing Features

Three Intensive Reading Instructional Teams provided a comprehensive half-day program of reading instruction for a period of approximately ten weeks. Pupils move from teacher to teacher located at reading centers at one hour intervals with each teacher specializing in one of the three instructional areas: 1) decoding area, a code-emphasis approach, which includes instruction in word analysis and word-attack skills, stressing individualization of instruction; 2) language development area; stressing oral communication and is designed to instill an enjoyment of reading; 3) perception development area; which is designed to develop an understanding of basic shapes and forms, and the ability to discriminate visual and auditory stimuli.

Major Inputs

Staff was the major input. Each of three centers had one reading specialist and two reading teachers. In addition, there was one part time project director and four clerk typists assigned to the program.

Among the other major outlays were those for language masters, visual materials, and testing supplies.

Evaluation

Of the three parts of the program, only the language development program was statistically analyzed. The results were measured for the first and second cycle in two different ways. In the first cycle the Peabody Picture Vocabulary Test (PPVT) was given as a pre test and the Primary Mental Abilities (PMA) was given as a post test. The results are shown below:

COMPARISON OF IRIT MEAN READING GAINS, OCTOBER-DECEMBER 1968 CYCLE

	October 1968		December 1968		
Center and Sex	PPVT Mean MA	SD	PPVT Mean MA	SD	Mean Difference After 10 Weeks
Emanuel					
Boys	5.4	1.3	6.5	.9	1.1
Girls	4.3	.7	6.5	.3	2.2
Ann Street					
Boys	5.5	2.2	5.8	.6	.3
Girls	4.7	.9	6.0	.7	1.3
Garden Street					
Boys	4.3	.7	5.5	1.7	1.2
Girls	4.9	.9	5.7	1.2	.8

In the second cycle the PMA was given as a pre and post test. The results are shown below:

COMPARISON OF IRIT MEAN READING GAINS, JANUARY - APRIL 1969 CYCLE

	January 1969		April 1969		
Center and Sex	PMA Mean Raw Score	SD	PMA Mean Raw Score	SD	Mean Difference After 10 Weeks
Emanuel					
Boys	56.6	24.2	94.4	12.9	37.8
Girls	73.7	27.2	101.1	18.3	27.4
Garden Street					
Boys	47.7	9.3	58.6	7.2	10.9
Girls	49.8	11.8	58.0	7.0	8.2

PROJECT CONCERN[1]

Purpose

The primary objective of the program is to provide equal educational opportunities for youngsters that live in the inner-city area of the city. Other objectives are (1) reverse the trend of declining achievement and mental ability scores in the non-white schools, (2) reverse the trend toward a "de facto" dual school system with all white and all black schools and (3) slow down, stop or reverse the signs of increasing social problems such as higher drop-out rates, increased unemployment, rising rates of family disintegration and dependence on welfare payments.

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[1] Hawkridge, op. cit. (1968), p. 218.

Target Population

The project involved 986 inner-city elementary students in 1968-1969. Students for the program are randomly selected. Selection is followed in order to insure adequate placement for each youngster by analysis of promotion cards, teacher conferences, and parent conferences.

Distinguishing Features

A total of 986 inner-city elementary students were transported from the inner-city to schools that are predominantly white and middle class. A total of 690 students were transported to 69 suburban public schools, 95 students to eight suburban parochial schools, 12 students to two suburban private schools, 164 students to six inner-city public schools and six students to one inner-city parochial school. A total of 86 schools in fifteen communities were involved. No less than two students or more than three students were put in any one classroom.

Para-professionals served in several roles. Some rode buses with the students, served in a classroom or acted as liaison with the parents. Hartford paid the tuition for each child sent to public school outside of its own school system. In addition, for every 25 children bussed to a school system, Hartford supplied one supportive teacher and one teacher aide.

Major Inputs

In 1968-1969, 36.5 full time equivalent teachers and 42 classroom aides were employed. Eleven "bus stop aides" were used part time.

Evaluation

For previous evaluation see American Institutes for Research (1968), pp. 226-230, and Thomas W. Mahon, Jr., Project Concern, a Two Year Report (Hartford Public Schools, 1968), p. 57.

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INDIANAPOLIS PUBLIC SCHOOLS

Indianapolis, Indiana

TOTAL COMPENSATORY EDUCATION PROGRAM

Under Title I, ESEA fourteen compensatory education programs are offered. They include Remedial Reading, Remedial Mathematics, Elementary Guidance, Tutorial Reading, Special Education, Teacher Aides, Social Science, Health Service, Psychological Service, Community Service, Student Activities, Pupil Transportation, Food Service, and Neglected Children. In addition, there is a Head Start Program, and a Learning-Teaching Laboratory designed to facilitate the learning of ninth grade pupils who are two grades or more behind their expected level.

THE TUTORIAL READING PROJECT[1]

Purpose

The purposes of the project were 1) to provide individual instruction in reading as a supplement to classroom instruction in first grade classes and 2) to obtain information concerning the effectiveness of the tutoring procedures and the optimum conditions for their use.

Target Population

In 1968-1969 tutoring was provided for a total of 1,711 children. They were chosen from the lower third of the first grade (predicted from Metropolitan Reading Readiness Test scores and teachers' judgments). Of these, 1,265 were tutored for the entire year. Others, who left school during the year and those who replaced these drop-outs on the recommendations of teachers, were tutored for part of the year, averaging approximately one half year, and others were tutored during the summer as shown below:

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[1] Hawkridge, op. cit. (1968), p. 252.

Duration of Tutoring	Ginn	Macmillan	Total
Full school year	1132	133	1205
Part of school year	268	50	318
Summer, 1969	128	-	128
Total	1528	183	1711

Distinguishing Features

The tutorial program for 1968-1969 consisted of two parts. The major effort was a continuation of the programs for previous years using the Ginn Tutorial materials and tutoring procedures in thirty-three schools which used the Ginn Basal Reader Series in their first grade classrooms. In the remaining six schools, which used the Macmillan Basic Reader Series, the program served as a try-out of newly devised tutoring procedures which utilized the Macmillan series and the workbooks which accompany it as tutoring materials.

First grade classroom instruction in reading was supplemented by one fifteen minute session of programmed tutoring daily. Programmed tutoring is a technique of individual instruction developed at Indiana University during the past nine years and field-tested in several Indiana school systems. It is a highly structured procedure which can be carried out effectively by non-professional persons but it is designed to be maximally sensitive to the individual learning characteristics of the children who are taught. It is a teaching technique rather than a set of materials so that the subject matter taught can be determined entirely by the curricular requirements of the school system in which it is used.

Major Inputs

The staffing of the program consisted entirely of para-professional personnel. There were seventy-eight tutors, a supervisor, and a clerk. Consultants also were used.

Other inputs such as instructional supplies, equipment, and travel were minor in terms of their dollar expenditure.

Evaluation

The evaluation of the effectiveness of the tutoring program is based primarily on comparisons of reading achievement test scores obtained at the end of the year for comparable samples of tutored and untutored children. Separate evaluations were made for the Ginn and Macmillan groups. The table below summarizes the 1969 results for the Ginn Evaluation on the Metropolitan Achievement Test, Elementary Battery I, Grade 1.

	Experimental		Control	
	M	SD	M	SD
Met. Ach., Elem. Battery I (1st Gr.)	52.94	13.78	49.22	14.60

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OVERTON COUNTY SCHOOL BOARD
Livingston, Tennessee

TOTAL COMPENSATORY EDUCATION PROGRAM

The majority of the districts' compensatory education effort is on the Improve Educational Environment and Cultural Deficiencies of Youth Program funded under Title I, ESEA. In addition, the district has a Title III, ESEA innovative program, and a Rural Education Improvement Project (REIP) supported by private grants.

IMPROVE EDUCATIONAL ENVIRONMENT AND CULTURAL DEFICIENCIES OF YOUTH PROGRAM

Purpose

The objectives of the program are:

1. To improve communication skills such as reading, speaking, writing, and listening for the disadvantaged child.
2. To enable these under-privileged children to catch up with children of their age group before they enter first grade.
3. To raise the reading level of pupils and to try to determine the reasons for the deficiency.
4. To provide remedial reading for pupils in grades three through six.
5. To provide counseling service for all needy children in an effort to guide them along wholesome paths of development and in order to help them find a respectable position in life.

Target Population

Participants in the pre school portion of the program were selected on the basis of results from the Metropolitan Readiness Test.

The Gates Reading Test was used to select students for participation in the lower elementary remedial reading portion of the program. The children reading one or more years below grade level were selected to participate. The Gates Reading Survey Test and the Peabody Vocabulary Test were used to select 5th and 6th grade pupils for participation in the remedial reading portion of the program.

Distinguishing Features

The project encompassed a wide range of services aimed at helping the disadvantaged child reach grade level. At the pre school level a kindergarten program was offered for disadvantaged children. There was close cooperation between this aspect of the program and the R.E.I.P. program. The kindergarten program was a full-day session designed to acquaint the children with school and to give them an opportunity to catch up with average children in their age group.

At the elementary level (grades 3-6) remedial reading teachers worked with underprivileged children. Pupils participated at a minimum of two and one half days per week. Education aides were provided at the ratio of one aide for every five teachers. In addition, library, counseling, and music services were provided.

At the secondary level an office occupation teacher was employed to provide vocational training for deprived pupils. Guidance, music, relief teachers, and supervisory personnel were added.

Major Inputs

The major input was staff. Assigned to the program were sixteen teachers; 1.25 guidance counselors; two secretaries; 31.5 education aides; one clerk; one librarian; and one materials supervisor. Expenditures for supplies and equipment were minor, most of it provided by funds from the R.E.I.P. program.

Evaluation

The Gates Reading Survey Test, forms M1 and M2 were administered as a pre and post test to 471 students participating in the remedial reading portion of the program, and a control group of 595 students not participating in the program. The average pre and post test scores and the average difference in grade equivalents for both groups in grades four through six and nine through twelve are shown below.

	Program Participants			Control Group		
		Average			Average	
Grade	Pre test	Post test	Diff.	Pre test	Post test	Diff.
4	2.8	4.0	1.2	3.9	5.0	1.1
5	3.7	4.7	1.0	4.8	5.3	.5
6	4.6	5.9	1.3	6.1	6.9	.8
9-12	6.5	7.4	.9	8.9	9.4	.5

Acknowledgements

Mr. Robert E. Moles, Superintendent
Mr. Willie H. Bilbrey

MILWAUKEE PUBLIC SCHOOLS

Milwaukee, Wisconsin

TOTAL COMPENSATORY EDUCATION PROGRAM

In 1968-1969 Milwaukee had a total of twenty compensatory education programs financed under Title I, ESEA in operation during the regular school year. Thirteen more operated during the summer. The regular school year programs were elementary programs aimed at remedial reading, language development, English as a second language, special kindergarten program and outdoor education. Five were secondary programs with emphasis on English language arts, math, social studies, science and music. Supportive programs included psychological services, elementary and secondary guidance, social work, special education, recreation for handicapped children, primary school special testing and instructional resources. Two non-public school services included a program in communication skills and homes for neglected and delinquent children.

Summer school programs included reading, speech and language therapy, pre kindergarten, English, science, social work, special education, homes for neglected and delinquent children and guidance programs.

THE SPEECH AND LANGUAGE DEVELOPMENT PROGRAM[1]

Purpose

The objectives of the program were:

1. To improve the verbal and conceptual functioning of kindergarten and lower primary children who are presenting a language delay, and

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[1] Hawkridge, op. cit. (1968), p. 268.

2. To improve the self concept and attitude toward school of the children.

Target Population

During the 1968-1969 school year, the Program served 865 children: 704 in the public schools and 161 in non-public schools. Boys outnumbered girls at a ratio of approximately three to two. The mean age of the children was from 6.2 to 6.4 years. The mean I. Q. was between 85.1 and 89.8.

Distinguishing Features

During the first semester, program therapists worked with small groups of eight children on an intensive basis - 45 minutes per day, four days per week, for 15 weeks. Another group of children was seen by the therapists for a similar time block during the second semester.

Using classroom teacher recommendations, results of a language screening test, and subjective evaluation, therapists ranked the children in each class as to their verbal ability, highest to lowest. The top 15 percent of each class was then eliminated since it contained the most verbal pupils. The lower 85 percent became the parent population from which the treatment samples were selected.

Major Inputs

The program had thirteen speech therapy teachers, one supervising teacher, and one clerk typist. The usual array of furniture and supplies such as desks, chairs, books, charts, typewriters, paper, crayons and office supplies, was provided. In addition the teachers utilized such equipment as language masters, tape recorders, record players, overhead projectors and slide projectors. Field trips were also provided.

The expenditures for 1968-1969 for the program totaled $131,150. Over $100,000 was for salaries. Expenditures for supplies and equipment totaled $23,580.

Evaluation

The table below presents the results of the regression analysis of data on communications skills. These data compared pupils, who received treatment during the first and second semester in the five-school sample, with a comparison group which received no specialized language training.

N=133; X=49; C=84

Criterion Measures	R^2**	Adjusted Means	
		X*	C*
Post-Attendance	.2200	86.26	85.74
Reading Level	.3782	3.34	3.65
Cooperative Primary Test			
Listening	.2124	29.84	31.35
Word Analysis	.1511	23.77	24.05

*X = experimental or treatment group
C = control or comparison group

**R^2= Amount of accountable variability

ELEMENTARY READING CENTERS[1]

Purpose

In 1968-1969 the goals of the program were:

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[1] Hawkridge, op. cit. (1968), p. 233.

1. Develop academic achievement to more nearly approach the individual's capacity.
2. Develop a healthy attitude toward education.
3. Develop a healthy mind and body.

Target Population

Student selection was based on a comparison of scores obtained from standardized tests of intelligence and reading. Preference was given to pupils from grades three through eight who were approximately one year retarded from their expected reading grade. Priority was given to pupils who were the most retarded in reading. Flexibility in selection was permitted, depending upon the individual case. The mean I. Q. for public elementary school children participating in the program was 81.4, and for non-public school children, 94.4. During 1968-1969, 1,085 public and 419 non-public school children were selected for participation in the program.

Distinguishing Features

The Elementary Reading Centers project was composed of two parts. Remedial and Strengthening Teacher Program served youngsters in grades one through three. The Elementary Reading Centers served children in grades three through eight.

The Elementary Reading Centers provided intensive instruction in reading skills. The main emphasis was placed on reading improvement. Before proper instruction in reading proceded, the pupil had to have adequate skills in listening and speaking as these skills preceded the act of reading and were part of the total communication skills area. Instruction in these areas was provided when needed.

The Reading Centers maintained a close working relationship with other ESEA Title I projects. The Strengthening and Remedial teacher evaluated her pupils and recommended to the Reading Center teacher those pupils in need of additional help once they leave her class. The Reading Center teacher could refer those pupils with severe reading problems to the ESEA Reading Clinics. Supportive services of a psychologist, guidance counselors, and social workers were also employed when deemed necessary.

Parents were invited to visit and participate in the Reading Improvement Program. The parents observed and worked with their child in the Reading Center.

Major Inputs

The major input was personnel. Twenty-four remedial reading teachers and two supervisors were employed full time in the program. Equipment inputs were small in terms of their dollar expenditures. Accoustic carrels, overhead projectors, tape recorders and SRA labs are examples of some of the equipment items used.

Evaluation

Participating students and non-participating students from five sampled elementary schools comprised the treatment and comparison groups for the inferential study at the elementary level. The analysis was by grade level. Raw scores on the Iowa Tests of Basic Skills Vocabulary and Reading subtests (criterion measures) were adjusted for initial differences between groups in I. Q., age, sex, Iowa Tests of Basic Skills Vocabulary and Reading, pre-report card grades, grade point average, attendance, and a discrepancy index computed from measured achievement (ITBS-pre) and expected achievement

(I. Q. and CA).

The table below presents the results of the inferential analysis of the Reading Center Program.

Grade	N		Criterion Measures	R^2**	Adjusted Means		F-Ratio
	X*	C*			X	C	
4	60	221	Iowa Test of Basic Skills Vocabulary	.2965	13.49	15.21	3.72
4	60	221	Reading	.3262	17.79	18.75	1.12
5	32	218	Vocabulary	.2951	11.26	16.80	15.59*
5	32	218	Reading	.2934	22.92	22.60	0.04
6	22	161	Vocabulary	.3460	14.45	17.14	2.17
6	22	161	Reading	.4802	21.98	20.56	0.67
7	20	12	Metropolitan Achievement Word Knowledge	.5688	14.36	14.58	0.01
7	20	12	Reading	.6578	10.81	12.90	0.10

X = Experimental or treatment group

C = Control or comparison group

*Significant at the .05 level

**R^2 = The amount of accountable variability

Adjustment Variables:

1. I. Q., sex, age, Iowa Tests of Basic Skills Vocabulary and Reading Subtests, and Group Membership
2. I. Q., sex, age, Iowa Tests of Basic Skills Vocabulary and Reading Subtests, Group Membership, Conduct Grades, Attendance, Grade Point Average, English Grade, Math Grade, Social Studies Grade, and Gap.

Acknowledgements

Dr. Richard P. Gousha, Superintendent
Miss June Perry
Mr. Melvin Yanow

APPENDIX C-III

SUPPORTING TABLES

TABLE C-6

ESTIMATED FULL TIME EQUIVALENT PUPILS, TEACHERS, AND OTHER PROFESSIONAL STAFF FOR SELECTED PROGRAMS, 1968-1969

School System and Selected Program	Estimated Full Time Equivalents Pupils	 Teachers	 Other Professional Staff
Los Angeles	321	10	.1
Oakland	495	32	6.3
Paramount	721	24	2.5
Pomona	133	6	2.1
Redondo Beach	50	3	4.3
Columbia County	127	13	4.0
Dade County	300	8	7.0
Duval County	112	5	1.0
Holmes County	20	1	-0-
Big Rapids	26	3	1.0
Detroit	34	6	3.0
Grand Rapids	34	3	-0-
Ypsilanti	25	6	7.5
Buffalo:			
Early Push	298	19	5.0
Plus After School	195	11	4.7
Expanded Language Arts	224	20	1.0
Plus Reading and Math	778	179	35.5
Cobleskill	15	1	-0-
New York City	4500	100	-0-
Rochester	150	15	5.0
Syracuse	690	29	.2
Austin	252	49	33.5
Brenham	225	9	4.0
Galena Park	416	26	4.2
Waco	350	21	3.0
Hartford:			
Project Concern	970	37	2.0
Intensive Reading Instructional Teams	45	6	4.0
Indianapolis	154	-0-	-0-
Overton County	397	16	3.3
Milwaukee:			
Elementary Reading Centers	150	24	2.0
Speech and Language Development Center	86	13	1.0

TABLE C-7

ESTIMATED TEACHERS SALARIES, OTHER PROFESSIONAL STAFF SALARIES, OTHER CURRENT EXPENDITURES, AND TOTAL CURRENT EXPENDITURES FOR SELECTED PROGRAMS, 1968-1969

School System and Selected Program	Teachers Salaries	Other Professional Staff Salaries	Other Current Expenditures	Total Current Expenditures
Los Angeles	$ 106,112	$ 1,604	$ 84,058	$191,774
Oakland	295,144	70,385	298,152	663,681
Paramount	256,479	34,500	367,349	658,028
Pomona	54,958	22,802	33,296	111,056
Redondo Beach	26,281	45,754	17,453	89,488
Columbia County	107,233	43,224	155,521	305,978
Dade County	72,318	62,741	99,038	234,097
Duval County	32,640	9,918	43,746	86,304
Holmes County	9,583	-0-	6,493	16,076
Big Rapids	11,359	820	14,759	26,938
Detroit	68,700	41,374	47,796	157,870
Grand Rapids	29,268	-0-	31,174	60,442
Ypsilanti	39,722	70,000	54,838	164,560
Buffalo:				
Early Push	152,609	52,102	147,586	352,296
Plus After School	97,875	34,426	127,773	260,074
Expanded Language Arts	159,465	13,000	187,126	359,591
Plus Reading and Math	1,495,050	354,791	504,964	2,354,805
Cobleskill	8,160	-0-	11,809	19,969
New York City	ND	ND	ND	1,200,000
Rochester	152,133	65,034	220,924	438,091
Syracuse	277,740	4,700	364,489	646,929
Austin	318,500	195,950	153,015	667,465
Brenham	59,961	33,888	87,451	181,300
Galena Park	197,600	32,794	101,798	332,192
Waco	12,600	2,400	22,398	37,398
Hartford:				
Project Concern	282,227	33,631	947,184	1,263,042
Intensive Reading Instructional Teams	62,160	54,003	30,130	146,293
Indianapolis	-0-	-0-	248,466	248,466
Overton County	73,922	20,190	115,254	209,366
Milwaukee:				
Elementary Reading Centers	200,635	24,633	19,063	244,331
Speech and Language Development Center	100,592	9,130	34,780	144,502

TABLE C-8

ESTIMATED PUPIL-TEACHER RATIOS, AVERAGE TEACHER SALARY AND AVERAGE SALARY FOR OTHER PROFESSIONAL STAFF FOR SELECTED PROGRAMS, 1968-1969

School System and Selected Program	Pupil-Teacher Ratio	Average Teacher Salary	Average Salary For Other Professional Staff
Los Angeles	32.1	$ 10,611	$ 16,040
Oakland	15.5	9,223	11,172
Paramount	30.0	10,687	13,800
Pomona	22.2	9,160	10,858
Redondo Beach	16.7	8,760	10,640
Columbia County	9.8	8,249	10,806
Dade County	37.5	9,040	8,963
Duval County	22.4	6,528	9,918
Holmes County	20.0	9,583	-0-
Big Rapids	7.7	3,786	820
Detroit	5.7	11,450	13,791
Grand Rapids	11.3	9,756	-0-
Ypsilanti	4.2	6,620	11,172
Buffalo:			
Early Push	15.7	8,032	10,420
Plus After School	17.7	8,898	7,325
Expanded Language Arts	11.2	7,973	13,000
Plus Reading and Math	4.3	8,352	9,994
Cobleskill	15.0	8,160	-0-
New York City	45.0	ND	-0-
Rochester	10.0	10,142	13,007
Syracuse	23.8	9,745	23,500
Austin	5.1	6,500	5,849
Brenham	25.0	6,662	8,472
Galena Park	16.0	7,600	7,808
Waco	16.7	600	800
Hartford:			
Project Concern	26.0	7,628	16,816
Intensive Reading Instructional Teams	7.5	10,360	13,501
Indianapolis	-0-	-0-	-0-
Overton County	24.8	4,620	6,118
Milwaukee:			
Elementary Reading Centers	6.3	8,360	12,317
Speech and Language Development Center	6.6	7,738	9,130

TABLE C-9

ESTIMATED CURRENT EXPENDITURE PER FTE PUPIL BY MAJOR CATEGORIES OF EXPENSE FOR SELECTED PROGRAMS

1968-1969

School System and Selected Program	Estimated Current Expense Per FTE Pupil by Major Categories				
	Teacher Salaries	Other Salaries	Total Salaries	Other Current Expenditure	Total Current Expenditure
Los Angeles	$ 331.	$ 5.	$ 336.	$ 262.	$ 598.
Oakland	596.	387.	983	357	1,340.
Paramount	356.	299.	655.	258.	913.
Pomona	413.	205.	618.	216.	834.
Redondo Beach	526.	1,106.	1,632.	158.	1,790.
Columbia County	844.	982.	1,826.	583.	2,409.
Dade County	241.	376.	617.	163.	780.
Duval County	291.	233.	524.	246.	770.
Holmes County	479.	100.	579.	225.	804.
Big Rapids	494.	380.	874.	297.	1,171.
Detroit	2,021.	1,995.	4,016	628.	4,644.
Grand Rapids	861.	202.	1,063.	715.	1,778.
Ypsilanti	1,589.	3,667.	5,256.	1,326.	6,582.
Buffalo:					
Early Push	512.	398.	910.	272.	1,182.
Plus After School	502.	532.	1,034.	299.	1,333.
Expanded Language Arts	712.	252.	964.	642.	1,606.
Plus Reading and Math	1,922.	437.	2,359.	668.	3,027.
Cobleskill	544.	364.	908.	423.	1,331.
New York City	ND	ND	ND	ND	267.
Rochester	1,014.	969.	1,983.	938.	2,921.
Syracuse	403.	222.	625.	313.	938.
Austin	1,264.	1,028.	2,292.	357.	2,649.
Brenham	266.	447.	713.	92.	805.
Galena Park	475.	211.	686.	112.	798.
Waco	36.	19.	55.	52.	107.
Hartford:					
Project Concern	291.	261.	552.	750.	1,302.
Intensive Reading Instructional Teams	1,381.	1,558.	2,939.	312.	3,251.
Indianapolis	-0-	1,387.	1,387.	227.	1,614.
Overton County	186.	211.	397.	130.	527.
Milwaukee:					
Elementary Reading Center	1,337.	203.	1,540.	127.	1,667.
Speech and Language Development	1,170.	156.	1,326.	354.	1,680.

TABLE C-10

ESTIMATED EXPENDITURES PER FTE PUPIL BASED UPON AVERAGE TEACHER SALARY FOR THE SYSTEM WITH OTHER CURRENT EXPENSE ALLOCATED ACCORDING TO FTE TEACHERS FOR SELECTED PROGRAMS, 1968-1969

School System and Selected Program	Estimated Expenditure Per FTE Pupil		
	Average Teacher Salary	Other Current Expense	Total Expense
Los Angeles	$ 325.	$ 321.	$ 646.
Oakland	624.	529.	1,153.
Paramount	267.	314.	581.
Pomona	442.	331.	773.
Redondo Beach	525.	421.	946.
Columbia County	746.	743.	1,489.
Dade County	243.	182.	425.
Duval County	340.	118.	458.
Holmes County	371.	311.	682.
Big Rapids	907.	832.	1,739.
Detroit	1,756.	1,777.	3,533.
Grand Rapids	861.	963.	1,824.
Ypsilanti	2,140.	1,499.	3,639.
Buffalo:			
Early Push	566.	583.	1,149.
Plus After School	501.	516.	1,017.
Expanded Language Arts	793.	817.	1,610.
Plus Reading and Math	2,044.	2,104	4,148.
Cobleskill	533.	627.	1,160.
New York City	ND	ND	ND
Rochester	972.	1,418.	2,390.
Syracuse	360.	318.	678.
Austin	1,297.	994.	2,291.
Brenham	246.	187.	433.
Galena Park	486.	289.	775.
Waco	438.	324.	762.
Hartford:			
Project Concern	352.	530.	882.
Intensive Reading Instructional Teams	1,233.	1,853.	3,086.
Indianapolis	ND	ND	ND
Overton County	224.	180.	404.
Milwaukee:			
Elementary Reading Centers	ND	ND	ND
Speech and Language Development Center	ND	ND	ND

TABLE C-11

ESTIMATED FULL TIME EQUIVALENT PUPILS FOR SPECIAL PROGRAM AREAS, THE REGULAR SCHOOL PROGRAM, AND ALL PROGRAMS IN SELECTED SCHOOL SYSTEMS

1968-1969

	ESTIMATED FULL TIME EQUIVALENT PUPILS						
School System	Pre-Kindergarten	Kindergarten	Exceptional Children	Vocational Education	Total Compensatory Education	Regular Program	All Programs
Los Angeles	-0-	26,700	23,687	32,318	61,000	512,396	656,101
Oakland	-0-	5,703	2,897	552	14,335	40,355	63,842
Paramount	-0-	576	396	-0-	721	7,970	9,663
Pomona	-0-	1,055	649	550	885	18,052	21,191
Redondo Beach	-0-	625	387	-0-	500	7,392	8,904
Columbia County	-0-	-0-	118	327	127	5,868	6,440
Dade County	846	3,339	5,485	2,911	4,360	211,845	228,786
Duval County	-0-	-0-	3,518	2,538	1,291	113,975	121,322
Holmes County	-0-	53	42	107	200	2,213	2,615
Big Rapids	-0-	78	60	-0-	26	2,105	2,269
Detroit	397	12,803	9,363	5,211	14,320	241,857	283,951
Grand Rapids	173	1,789	653	302	579	28,723	32,219
Ypsilanti	47	332	507	142	677	5,231	6,936
Buffalo	218	2,750	2,468	6,032	2,329	57,405	71,202
Cobleskill	-0-	156	-0-	31	21	1,665	1,873
New York City	3,890	44,711	ND	ND	ND	1,053,153	1,101,704
Rochester	210	2,337	2,590	930	2,500	35,675	44,242
Syracuse	-0-	1,408	739	303	1,573	24,999	29,022
Austin	-0-	175	1,063	1,203	745	47,733	50,919
Brenham	-0-	-0-	103	128	225	2,939	3,395
Galena Park	-0-	-0-	490	226	483	10,364	11,563
Waco	-0-	-0-	816	299	2,249	15,583	18,947
Hartford	240	807	414	50	1,765	24,717	27,993
Indianapolis	-0-	3,611	600	592	8,125	91,642	104,570
Overton County	-0-	189	10	15	397	2,848	3,459
Milwaukee	ND	ND	ND	ND	ND	ND	118,873

TABLE C-12

ESTIMATED FULL TIME EQUIVALENT TEACHERS IN SPECIAL PROGRAM AREAS, THE REGULAR SCHOOL PROGRAM, AND ALL PROGRAMS IN SELECTED SCHOOL SYSTEMS, 1968-1969

	ESTIMATED FULL TIME EQUIVALENT TEACHERS						
School System	Pre-Kindergarten	Kindergarten	Exceptional Children	Vocational Education	Total Compensatory Education	Regular Program	All Programs
Los Angeles	-0-	844	617	1,703	800	20,422	24,386
Oakland	-0-	161	285	58	159	2,181	2,844
Paramount	-0-	21	32	-0-	24	329	406
Pomona	-0-	42	93	29	6	651	821
Redondo Beach	-0-	36	47	-0-	21	314	418
Columbia County	-0-	-0-	11	20	13	236	280
Dade County	48	163	306	167	272	8,701	9,657
Duval County	-0-	-0-	84	127	128	5,595	5,934
Holmes County	-0-	3	3	8	6	108	128
Big Rapids	-0-	3	4	-0-	3[1]	82	89
Detroit	16	445	743	206	490	8,669	10,569
Grand Rapids	13	70	146	15	58	1,042	1,344
Ypsilanti	14	12	53	4	30	277	390
Buffalo	15	115	154	365	378	2,643	3,670
Cobleskill	-0-	6	-0-	1	1	97	105
New York City	81	ND	ND	ND	2,259	ND	61,276
Rochester	22	95	170	120	133	1,696	2,236
Syracuse	-0-	56	80	27	128	1,176	1,467
Austin	-0-	10	137	61	71	1,882	2,161
Brenham	-0-	-0-	7	10	9	139	165
Galena Park	-0-	-0-	38	21	33	448	540
Waco	-0-	-0-	81	34	20[2]	650	785
Hartford	16	57	86	5	240	1,101	1,505
Indianapolis	-0-	164	26	50	50	4,125	4,415
Overton County	-0-	10	1	1	14	117	143
Milwaukee	ND	ND	ND	ND	ND	ND	4,779

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[1] Not included in total for school system.

[2] Does not include teachers in summer school selected program.

TABLE C-13

ESTIMATED PUPIL-TEACHER RATIOS IN SELECTED PROGRAM AREAS, THE REGULAR SCHOOL PROGRAM, AND ALL PROGRAMS IN SELECTED SCHOOL SYSTEMS, 1968-1969

	ESTIMATED PUPIL-TEACHER RATIOS						
School System	Pre-Kindergarten	Kindergarten	Exceptional Children	Vocational Education	Total Compensatory Education	Regular Program	All Programs
Los Angeles	-0-	31.6	38.4	19.0	76.3	25.1	26.9
Oakland	-0-	35.4	10.2	9.5	90.2	18.5	22.4
Paramount	-0-	27.4	12.4	-0-	30.0	24.2	23.8
Pomona	-0-	25.1	7.0	19.0	147.5	27.7	25.8
Redondo Beach	-0-	17.4	8.2	-0-	23.8	23.5	21.3
Columbia County	-0-	-0-	10.7	16.4	9.8	24.9	23.0
Dade County	17.6	20.5	17.9	17.4	16.0	24.3	23.7
Duval County	-0-	-0-	41.9	19.9	10.1	20.4	20.4
Holmes County	-0-	17.7	14.0	13.4	33.3	20.5	20.4
Big Rapids	-0-	26.0	15.0	-0-	8.7	25.7	25.4
Detroit	24.8	28.8	12.6	25.3	29.2	27.9	26.9
Grand Rapids	13.3	25.6	4.5	20.1	10.0	27.6	24.0
Ypsilanti	3.4	27.7	9.6	35.5	22.6	18.9	17.8
Buffalo	14.5	23.9	16.0	16.5	6.2	21.7	19.4
Cobleskill	-0-	26.0	-0-	31.0	21.0	17.2	17.8
New York City	48.0	ND	ND	ND	ND	ND	18.0
Rochester	9.5	24.6	15.2	7.8	18.8	21.0	19.8
Syracuse	-0-	25.1	9.2	11.2	12.3	21.3	19.8
Austin	-0-	17.5	7.8	19.9	10.5	25.4	23.6
Brenham	-0-	-0-	14.7	12.8	25.0	21.1	20.6
Galena Park	-0-	-0-	12.9	10.8	14.6	23.1	21.4
Waco	-0-	-0-	10.1	8.8	112.5	24.0	24.1
Hartford	15.0	14.2	4.8	10.0	7.4	22.4	18.6
Indianapolis	-0-	22.0	23.1	11.8	162.5	22.2	23.7
Overton County	-0-	-0-	10.0	15.0	28.4	24.3	22.9
Milwaukee	ND	ND	ND	ND	ND	24.9	ND

TABLE C-14

ESTIMATED TEACHERS SALARIES FOR SPECIAL PROGRAM AREAS, REGULAR SCHOOL PROGRAM, AND TOTAL PROGRAM IN SELECTED SCHOOL SYSTEMS
1968-1969

School System	ESTIMATED TEACHERS SALARIES (IN THOUSANDS) Pre-Kindergarten	Kindergarten	Exceptional Children	Vocational Education	Total Compensatory Education	Regular Program	All Programs
Los Angeles	$ -0-	$ 8,670	$ 7,105	$ 20,984	$ 8,000	$ 209,795	$254,554
Oakland	-0-	1,586	2,867	590	1,445	20,945	27,432
Paramount	-0-	188	295	-0-	250	2,525	3,257
Pomona	-0-	386	96	290	55	7,220	8,048
Redondo Beach	-0-	279	329	-0-	229	2,824	3,660
Columbia County	-0-	-0-	73	145	107	1,715	2,041
Dade County	ND	ND	ND	ND	ND	ND	87,840
Duval County	-0-	-0-	633	1,076	976	42,542	45,227
Holmes County	-0-	22	18	64	30	815	948
Big Rapids	-0-	28	31	-0-	3*	641	690
Detroit	157	4,422	7,394	2,052	4,872	86,240	105,137
Grand Rapids	165	683	1,596	145	566	9,958	13,112
Ypsilanti	98	94	501	45	215	2,523	3,478
Buffalo	116	986	2,077	3,756	3,161	22,512	32,608
Cobleskill	-0-	56	-0-	9	8	768	840
New York City	ND	ND	ND	ND	ND	ND	ND
Rochester	215	827	1,660	1,172	1,298	16,558	21,730
Syracuse	-0-	552	767	248	1,156	11,549	14,272
Austin	-0-	67	908	397	459	12,589	14,419
Brenham	-0-	-0-	43	64	60	850	1,017
Galena Park	-0-	-0-	280	161	263	3,492	4,196
Waco	-0-	-0-	480	223	117	4,910	5,730
Hartford	124	480	747	46	2,038	10,479	13,914
Indianapolis	-0-	1,334	210	500	364	35,840	38,248
Overton County	-0-	59	6	7	74	648	794
Milwaukee	ND	ND	ND	ND	ND	ND	ND

*Teachers salaries for the selected program are not included in the total for the school system.

TABLE C-15

ESTIMATED CURRENT EXPENDITURES EXCLUSIVE OF TEACHERS SALARIES FOR SPECIAL PROGRAM AREAS, THE REGULAR SCHOOL PROGRAM, AND ALL PROGRAMS ALLOCATED ACCORDING TO FTE TEACHERS IN SELECTED SYSTEMS

1968-1969

	ESTIMATED CURRENT EXPENDITURES EXCLUSIVE OF TEACHERS SALARIES (IN THOUSANDS)						
School System	Pre-Kindergarten	Kindergarten	Exceptional Children	Vocational Education	Total Compensatory Education	Regular Program	All Programs
Los Angeles	$ -0-	$ 8,793	$ 6,281	$ 17,587	$ 8,291	$210,289	$251,242
Oakland	-0-	1,318	2,333	475	1,301	17,850	23,276
Paramount	-0-	198	302	-0-	227	3,108	3,835
Pomona	-0-	308	682	213	44	4,776	6,023
Redondo Beach	-0-	253	330	-0-	147	2,205	2,935
Columbia County	-0-	-0-	81	147	95	1,729	2,051
Dade County	340	1,154	2,166	1,182	1,925	61,586	68,352
Duval County	-0-	-0-	234	353	356	15,573	16,517
Holmes County	-0-	19	19	50	37	672	797
Big Rapids	-0-	22	29	-0-	*	591	642
Detroit	16	4,481	7,482	2,074	4,934	87,291	106,423
Grand Rapids	142	764	1,593	164	633	11,367	14,661
Ypsilanti	87	75	331	25	187	1,730	2,435
Buffalo	137	1,052	1,409	3,338	3,457	24,174	33,567
Cobleskill	-0-	56	-0-	9	9	912	987
New York City	ND	ND	ND	ND	ND	ND	ND
Rochester	312	1,347	2,410	1,701	1,885	24,043	31,698
Syracuse	-0-	431	615	208	985	9,046	11,285
Austin	-0-	51	700	312	363	9,618	11,044
Brenham	-0-	-0-	33	47	42	649	771
Galena Park	-0-	-0-	175	97	152	2,069	2,494
Waco	-0-	-0-	437	184	108	3,509	4,238
Hartford	222	792	1,195	69	3,334	15,294	20,906
Indianapolis	-0-	976	155	298	298	24,559	26,286
Overton County	-0-	45	4	4	62	521	637
Milwaukee	ND	ND	ND	ND	ND	ND	ND

*Summer Program; no allocation made.

TABLE C-16

ESTIMATED CURRENT EXPENDITURE BASED UPON ESTIMATED TEACHERS SALARIES AND ALLOCATED OTHER CURRENT EXPENSE FOR SPECIAL PROGRAM AREAS, THE REGULAR SCHOOL PROGRAM, AND ALL PROGRAMS IN SELECTED SCHOOL SYSTEMS

1968-1969

	ESTIMATED CURRENT EXPENDITURE (IN THOUSANDS)						
School System	Pre-Kindergarten	Kindergarten	Exceptional Children	Vocational Education	Total Compensatory Education	Regular Program	All Programs
Los Angeles	$ -0-	$ 17,464	$ 13,386	$ 38,571	$ 16,291	$420,084	$505,796
Oakland	-0-	2,904	5,199	1,064	2,747	38,795	50,708
Paramount	-0-	386	597	-0-	476	5,632	7,092
Pomona	-0-	695	779	503	99	11,995	14,071
Redondo Beach	-0-	531	659	-0-	376	5,029	6,595
Columbia County	-0-	-0-	154	292	202	3,445	4,092
Dade County	ND	ND	ND	ND	ND	ND	156,192
Duval County	-0-	-0-	866	1,430	1,332	58,115	61,744
Holmes County	-0-	40	37	114	67	1,487	1,745
Big Rapids	-0-	49	60	-0-	*	1,232	1,341
Detroit	318	8,903	14,875	4,127	9,806	173,531	211,559
Grand Rapids	307	1,447	3,189	308	1,199	21,324	27,773
Ypsilanti	186	169	832	70	403	4,253	5,913
Buffalo	254	2,038	3,485	7,094	6,618	46,686	66,175
Cobleskill	-0-	112	-0-	18	18	1,679	1,827
New York City	ND	ND	ND	ND	ND	ND	1,311,617
Rochester	527	2,174	4,070	2,873	3,184	40,601	53,428
Syracuse	-0-	983	1,382	456	2,140	20,595	25,556
Austin	-0-	118	1,608	708	822	22,207	25,462
Brenham	-0-	-0-	76	111	102	1,499	1,787
Galena Park	-0-	-0-	455	258	416	5,560	6,690
Waco	-0-	-0-	918	406	225	8,419	9,968
Hartford	346	1,272	1,942	115	5,372	25,773	34,820
Indianapolis	-0-	2,310	365	798	661	60,400	64,534
Overton County	-0-	104	10	11	136	1,169	1,431
Milwaukee	ND	ND	ND	ND	ND	ND	ND

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*Summer school program.

TABLE C-17

ESTIMATED AVERAGE TEACHERS SALARIES IN SPECIAL PROGRAM AREAS, THE REGULAR SCHOOL PROGRAM, AND ALL PROGRAMS IN SELECTED SCHOOL SYSTEMS, 1968-1969

	ESTIMATED AVERAGE TEACHERS SALARIES						
School System	Pre-Kindergarten	Kindergarten	Exceptional Children	Vocational Education	Total Compensatory Education	Regular Program	All Programs
Los Angeles	$ -0-	$ 10,273	$ 11,515	$ 12,322	$ 10,000	$10,273	$ 10,439
Oakland	-0-	9,850	10,059	10,164	9,090	9,603	9,645
Paramount	-0-	8,946	9,208	-0-	10,401	7,673	8,021
Pomona	-0-	9,201	1,035	10,017	9,160	11,090	9,802
Redondo Beach	-0-	7,741	6,996	-0-	10,890	8,993	8,756
Columbia County	-0-	-0-	6,668	7,250	8,249	7,268	7,289
Dade County	ND	ND	ND	ND	ND	ND	9,096
Duval County	-0-	-0-	7,531	8,476	7,623	7,603	7,622
Holmes County	-0-	7,217	5,987	8,016	4,993	7,544	7,410
Big Rapids	-0-	9,224	7,849	-0-	1,067[1]	7,812	7,861
Detroit	9,824	9,937	9,951	9,962	9,942	9,948	9,948
Grand Rapids	12,671	9,756	10,934	9,652	9,756	9,556	9,756
Ypsilanti	7,033	7,867	9,459	11,329	7,181	9,108	8,917
Buffalo	7,764	8,572	13,486	10,290	8,362	8,518	8,885
Cobleskill	-0-	9,282	-0-	8,750	8,160	7,913	8,002
New York City	ND	ND	ND	ND	ND	ND	ND
Rochester	9,763	8,710	9,763	9,763	9,763	9,763	9,718
Syracuse	-0-	9,863	9,583	9,200	9,029	9,820	9,729
Austin	-0-	6,671	6,625	6,500	6,461	6,689	6,672
Brenham	-0-	-0-	6,169	6,386	6,662	6,112	6,161
Galena Park	-0-	-0-	7,360	7,679	7,977	7,794	7,770
Waco	-0-	-0-	5,931	6,548	5,868	7,553	7,300
Hartford	7,731	8,419	8,691	9,198	8,493	9,517	9,245
Indianapolis	-0-	8,133	8,070	10,004	7,273	8,689	8,663
Overton County	-0-	5,928	5,950	6,550	5,280	5,538	5,550
Milwaukee	ND	ND	ND	ND	ND	ND	ND

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[1] Summer School Program.

TABLE C-18

ESTIMATED TEACHERS SALARY EXPENSE PER FTE PUPIL FOR SPECIAL PROGRAM AREAS,
THE REGULAR SCHOOL PROGRAM, AND ALL PROGRAMS IN SELECTED SCHOOL SYSTEMS, 1968-1969

School System	ESTIMATED TEACHER SALARY PER FTE PUPIL						
	Pre-Kindergarten	Kindergarten	Exceptional Children	Vocational Education	Total Compensatory Education	Regular Program	All Programs
Los Angeles	$ -0-	$ 325.	$ 300.	$ 649.	$ 131.	$ 409.	$ 388.
Oakland	-0-	278.	990.	1,068.	101.	519.	430.
Paramount	-0-	326.	744.	-0-	346.	317.	337.
Pomona	-0-	366.	148.	528.	62.	400.	380.
Redondo Beach	-0-	446.	850.	-0-	457.	382.	411.
Columbia County	-0-	-0-	622.	443.	844.	292.	317.
Dade County	ND	ND	ND	ND	ND	ND	384.
Duval County	-0-	-0-	180.	424.	756.	373.	373.
Holmes County	-0-	408.	428.	599.	150.	368.	363.
Big Rapids	-0-	355.	523.	-0-	123.	304.	308.
Detroit	396.	345.	790.	394.	340.	357.	370.
Grand Rapids	952.	382.	2,445.	479.	977.	347.	407.
Ypsilanti	2,095.	284.	989.	319.	318.	482.	501.
Buffalo	534.	358.	842.	623.	1,357.	392.	458.
Cobleskill	-0-	357.	-0-	282.	389.	461.	449.
New York City	ND	ND	ND	ND	ND	ND	ND
Rochester	1,023.	354.	641.	1,260.	519.	464.	491.
Syracuse	-0-	392.	1,037.	820.	735.	462.	492.
Austin	-0-	381.	854.	330.	616.	264.	283.
Brenham	-0-	-0-	419.	499.	266.	289.	299.
Galena Park	-0-	-0-	571.	714.	545.	337.	363.
Waco	-0-	-0-	589.	745.	52.	315.	302.
Hartford	515.	595.	1,805.	920.	1,155.	424.	497.
Indianapolis	-0-	369.	350.	845.	45.	391.	366.
Overton County	-0-	317.	595.	437.	186.	228.	229.
Milwaukee	ND	ND	ND	ND	ND	ND	ND

TABLE C-19

ESTIMATED TEACHERS SALARY EXPENSE PER FTE PUPIL USING THE ESTIMATED AVERAGE TEACHERS SALARY FOR THE SYSTEM FOR SPECIAL PROGRAM AREAS AND FOR THE REGULAR SCHOOL PROGRAM IN SELECTED SCHOOL SYSTEMS, 1968-1969

	ESTIMATED TEACHERS SALARY EXPENSE PER FTE PUPIL USING SYSTEM AVERAGE						
School System	Pre-Kindergarten	Kindergarten	Exceptional Children	Vocational Education	Total Compensatory Education	Regular Program	All Programs
Los Angeles	$ -0-	$ 330.	$ 272.	$ 550.	$ 137.	$ 416.	$ 388.
Oakland	-0-	272.	949.	1,013.	107.	521.	430.
Paramount	-0-	292.	648.	-0-	267.	331.	337.
Pomona	-0-	390.	1,405.	517.	66.	353.	380.
Redondo Beach	-0-	504.	1,063.	-0-	368.	372.	411.
Columbia County	-0-	-0-	679.	446.	746.	293.	317.
Dade County	516.	444.	507.	522.	985.	374.	384.
Duval County	-0-	-0-	182.	381.	756.	374.	373.
Holmes County	-0-	419.	529.	554.	222.	362.	363.
Big Rapids	-0-	302.	523.	-0-	*	306.	308.
Detroit	401.	346.	789.	393.	340.	357.	370.
Grand Rapids	733.	382.	2,181.	485.	977.	354.	407.
Ypsilanti	266.	322.	932.	251.	395.	472.	501.
Buffalo	611.	372.	554.	538.	1,442.	409.	458.
Cobleskill	-0-	308.	-0-	258.	381.	466.	449.
New York City	ND	ND	ND	ND	ND	ND	ND
Rochester	1,018.	395.	638.	1,254.	517.	462.	491.
Syracuse	-0-	387.	1,053.	867.	792.	458.	492.
Austin	-0-	381.	860.	338.	815.	263.	283.
Brenham	-0-	-0-	419.	481.	246.	291.	299.
Galena Park	-0-	-0-	603.	722.	531.	336.	363.
Waco	-0-	-0-	725.	830.	65.	304.	302.
Hartford	616.	653.	1,920.	925.	1,257.	412.	497.
Indianapolis	-0-	393.	375.	732.	53.	390.	366.
Overton County	-0-	294.	555.	370.	196.	228.	229.
Milwaukee	ND	ND	ND	ND	ND	ND	ND

*Summer School Program. Average teacher salary for school system is not comparable.

TABLE C-20

ESTIMATED CURRENT EXPENDITURE PER FTE PUPIL USING ESTIMATED ACTUAL TEACHER SALARIES AND ALLOCATING OTHER CURRENT EXPENDITURES ACCORDING TO FTE TEACHERS FOR SPECIAL PROGRAM AREAS, THE REGULAR SCHOOL PROGRAM AND ALL PROGRAMS IN SELECTED SCHOOL SYSTEMS 1968-1969

	ESTIMATED CURRENT EXPENDITURE PER FTE PUPIL						
School System	Pre-Kindergarten	Kindergarten	Exceptional Children	Vocational Education	Total Compensatory Education	Regular Program	All Programs
Los Angeles	$ -0-	$ 654.	$ 565.	$ 1,193.	$ 267.	$ 820.	$ 771.
Oakland	-0-	509.	1,795.	1,928.	192.	961.	799.
Paramount	-0-	671.	1,507.	-0-	661.	707.	734.
Pomona	-0-	658.	1,200.	915.	112.	664.	664.
Redondo Beach	-0-	850.	1,702.	-0-	752.	680.	741.
Columbia County	-0-	-0-	1,305.	892.	1,594.	587.	635.
Dade County	ND	ND	ND	ND	ND	ND	683.
Duval County	-0-	-0-	246.	563.	1,032.	510.	510.
Holmes County	-0-	761.	872.	1,065.	337.	672.	667.
Big Rapids	-0-	632.	1,004.	-0-	*	585.	591.
Detroit	802.	695.	1,589.	792.	685.	717.	745.
Grand Rapids	1,772.	809.	4,884.	1,021.	2,070.	742.	862.
Ypsilanti	3,955.	510.	1,642.	495.	595.	813.	853.
Buffalo	1,164.	741.	1,412.	1,176.	2,842.	813.	929.
Cobleskill	-0-	718.	-0-	585.	836.	1,009.	975.
New York City	ND	ND	ND	ND	ND	ND	1,245.
Rochester	2,508.	930.	1,571.	3,089.	1,274.	1,138.	1,208.
Syracuse	-0-	698.	1,870.	1,505.	1,361.	824.	881.
Austin	-0-	673.	1,513.	589.	1,103.	465.	500.
Brenham	-0-	-0-	737.	864.	453.	510.	526.
Galena Park	-0-	-0-	929.	1,143.	861.	537.	579.
Waco	-0-	-0-	1,125.	1,359.	100.	540.	526.
Hartford	1,441.	1,576.	4,691.	2,309.	3,044.	1,043.	1,244.
Indianapolis	-0-	640.	608.	1,348.	81.	659.	617.
Overton County	-0-	549.	1,041.	734.	343.	411.	414.
Milwaukee	ND	ND	ND	ND	ND	656.	672.

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*Summer school selected program. No allocation of other expenses made.

TABLE C-21

ESTIMATED CURRENT EXPENDITURE PER FTE PUPIL USING ESTIMATED AVERAGE TEACHER SALARY FOR THE SYSTEM AND ALLOCATING OTHER CURRENT EXPENDITURES ACCORDING TO FTE TEACHERS FOR SPECIAL PROGRAM AREAS AND FOR THE REGULAR SCHOOL PROGRAM IN SELECTED SCHOOL SYSTEMS, 1968-1969

School System	ESTIMATED CURRENT EXPENDITURE PER FTE PUPIL USING AVERAGE SALARY					
	Pre-Kindergarten	Kindergarten	Exceptional Children	Vocational Education	Total Compensatory Education	Regular Program
Los Angeles	$ -0-	$ 659.	$ 537.	$ 1,094.	$ 273.	$ 826.
Oakland	-0-	503.	1,754.	1,873.	198.	963.
Paramount	-0-	636.	1,411.	-0-	581.	721.
Pomona	-0-	682.	2,456.	904.	116.	618.
Redondo Beach	-0-	908.	1,916.	-0-	663.	670.
Columbia County	-0-	-0-	1,362.	894.	1,496.	588.
Dade County	918.	790.	902.	928.	1,009.	665.
Duval County	-0-	-0-	248.	520.	1,032.	511.
Holmes County	-0-	771.	974.	1,019.	409.	666.
Big Rapids	-0-	579.	533.	-0-	*	587.
Detroit	807.	696.	1,588.	791.	685.	718.
Grand Rapids	1,553.	809.	4,620.	1,027.	2,070.	750.
Ypsilanti	2,126.	548.	1,585.	427.	672.	803.
Buffalo	1,240.	754.	1,125.	1,091.	2,926.	830.
Cobleskill	-0-	669.	-0-	561.	829.	1,014.
New York City	ND	ND	ND	ND	ND	ND
Rochester	2,503.	971.	1,568.	3,083.	1,271.	1,136.
Syracuse	-0-	693.	1,886.	1,552.	1,418.	819.
Austin	-0-	673.	1,519.	597.	1,302.	464.
Brenham	-0-	-0-	736.	846.	433.	512.
Galena Park	-0-	-0-	961.	1,151.	846.	536.
Waco	-0-	-0-	1,261.	1,444.	113.	529.
Hartford	1,542.	1,634.	4,806.	2,314.	3,146.	1,031.
Indianapolis	-0-	663.	633.	1,235.	90.	658.
Overton County	-0-	530.	1,001.	667.	353.	411.
Milwaukee	ND	ND	ND	ND	ND	ND

*Selected Program is summer program. Average teacher salary in system is not comparable.

TABLE C-22

ESTIMATED COST DIFFERENTIALS BETWEEN THE SPECIAL PROGRAM AREAS AND THE REGULAR SCHOOL PROGRAM BASED UPON ESTIMATED CURRENT EXPENDITURES USING ACTUAL TEACHERS SALARIES AND ESTIMATED CURRENT EXPENDITURES USING AVERAGE TEACHERS SALARIES PER PUPIL IN SELECTED SCHOOL SYSTEMS, 1968-1969

	ESTIMATED COST DIFFERENTIALS[1]									
School System	Pre-Kindergarten		Kindergarten		Exceptional Children		Vocational Education		Total Compensatory Education	
	A	B	A	B	A	B	A	B	A	B
Los Angeles	-0-	-0-	.80	.80	.69	.65	1.45	1.32	.33	.33
Oakland	-0-	-0-	.53	.52	1.87	1.82	2.01	1.94	2.00	2.05
Paramount	-0-	-0-	.95	.87	2.13	1.96	-0-	-0-	.93	.81
Pomona	-0-	-0-	.99	1.10	1.81	3.97	1.38	1.46	.17	.19
Redondo Beach	-0-	-0-	1.25	1.36	2.50	2.86	-0-	-0-	1.11	.99
Columbia County	-0-	-0-	-0-	-0-	2.22	2.32	1.52	1.52	2.72	2.54
Dade County	ND	1.40	ND	1.21	ND	1.36	ND	1.40	ND	1.52
Duval County	-0-	-0-	-0-	-0-	.48	.49	1.10	1.02	2.02	2.02
Holmes County	-0-	-0-	1.13	1.16	1.30	1.46	1.58	1.53	.50	.61
Big Rapids	-0-	-0-	1.08	.98	1.72	1.72	-0-	-0-	2.95	*
Detroit	1.12	1.12	.97	.97	2.22	2.21	1.10	1.10	.96	.95
Grand Rapids	2.39	2.07	1.09	1.08	6.58	6.16	1.38	1.37	2.79	2.76
Ypsilanti	4.86	2.65	.63	.68	2.02	1.97	.61	.53	.73	.84
Buffalo	1.43	1.49	.91	.91	1.73	1.35	1.45	1.31	3.50	3.52
Cobleskill	-0-	-0-	.71	.66	-0-	-0-	.58	.55	.83	.82
New York City	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Rochester	2.20	2.20	.82	.85	1.38	1.38	2.71	2.71	1.12	1.12
Syracuse	-0-	-0-	.85	.85	2.27	2.30	1.83	1.89	1.65	1.73
Austin	-0-	-0-	1.44	1.45	3.25	3.27	1.27	1.29	2.37	2.81
Brenham	-0-	-0-	-0-	-0-	1.44	1.44	1.69	1.65	.89	.85
Galena Park	-0-	-0-	-0-	-0-	1.73	1.79	2.13	2.15	1.60	1.58
Waco	-0-	-0-	-0-	-0-	2.08	2.38	2.52	2.72	.19	.21
Hartford	1.38	1.50	1.51	1.58	4.50	4.66	2.21	2.24	2.92	3.05
Indianapolis	-0-	-0-	1.04	1.01	.93	.96	2.05	1.88	.12	.14
Overton County	-0-	-0-	1.33	1.28	2.53	2.43	1.79	1.62	.83	.86
Milwaukee	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

[1] Estimated cost differentials may not be the same as estimated differentials derived from pupil-teacher ratios in Table C-13 due to rounding.

*Summer school program. Average Teacher Salary for the system is not comparable.

Cost Differential A: Based on Actual Teachers Salaries Paid
Cost Differential B: Based on Average Teacher Salary in System

TABLE C-23

ESTIMATED COST DIFFERENTIALS BETWEEN THE SELECTED PROGRAM AND REGULAR SCHOOL PROGRAM BASED UPON ESTIMATED CURRENT EXPENDITURE PER PUPIL USING ACTUAL TEACHERS SALARIES AND AVERAGE TEACHER SALARY IN SELECTED SCHOOL SYSTEMS

1968-1969

School System and Selected Program	Estimated Cost Differentials[1]	
	A	B
Los Angeles	.73	.72
Oakland	1.39	1.42
Paramount	1.29	1.14
Pomona	1.26	1.40
Redondo Beach	2.63	2.67
Columbia County	4.10	3.93
Dade County	ND	1.18
Duval County	1.51	1.60
Holmes County	1.20	1.05
Big Rapids	2.00	2.70
Detroit	6.48	6.10
Grand Rapids	2.40	2.37
Ypsilanti	8.10	8.88
Buffalo: Early Push	1.45	1.49
Plus After School	1.64	1.60
Expanded Language Arts	1.98	2.03
Plus Reading and Math	3.72	3.79
Cobleskill	1.32	1.30
New York City	ND	ND
Rochester	2.57	2.53
Syracuse	1.14	1.09
Austin	5.70	5.78
Brenham	1.58	1.53
Galena Park	1.49	1.51
Waco	.20	ND
Hartford: Project Concern	1.25	1.32
Intensive Reading Instructional Teams	3.12	3.01
Indianapolis	2.45	2.45
Overton County	1.28	1.37
Milwaukee: Elementary Reading Centers	2.54	ND
Speech and Language Development Centers	2.56	ND

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[1] Cost Differential A: Based on actual teachers salaries paid in selected program and regular school program.

Cost Differential B: Based on average teacher salary paid in the system.

5A

TABLE C-24

ESTIMATED TEACHERS SALARIES PER FTE PUPIL (USING THE ESTIMATED AVERAGE SALARY FOR THE SYSTEM) FOR OTHER COMPENSATORY EDUCATION PROGRAMS AFTER EXCLUDING THE SELECTED PROGRAMS IN SELECTED SCHOOL SYSTEMS

1968-1969

School System	Estimated Teacher Salary Per FTE Pupil Other Compensatory Education Programs
Los Angeles	$ 136.
Oakland	65.
Paramount[1]	-0-
Pomona[2]	-0-
Redondo Beach	350.
Columbia County[3]	-0-
Dade County	591.
Duval County	825.
Holmes County	210.
Big Rapids[1]	-0-
Detroit	337.
Grand Rapids	985.
Ypsilanti	328.
Buffalo	1,587.
Cobleskill[2]	-0-
New York City	ND
Rochester	488.
Syracuse	1,102.
Austin	298.
Brenham[1]	-0-
Galena Park	812.
Waco	77.
Hartford	2,552.
Indianapolis	54.
Overton County[1]	-0-
Milwaukee	ND

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[1] Selected Program represents the total compensatory education program.

[2] No teachers in other compensatory education programs.

[3] The other compensatory education program consisted primarily of supporting services.